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September 30, 2009

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: Notice of Inquiry, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless including Commercial Mobile Services*, WT Docket No. 09-66, FCC 09-67 (rel. Aug. 27, 2009)

Dear Ms. Dortch:

Enclosed please find the Comments of AT&T Inc. in response to the above-referenced Notice of Inquiry. These Comments were filed electronically today via the Commission's Electronic Comments Filing System.

Also enclosed, as an attachment to AT&T's Comments, is the declaration of Robert D. Willig. Dr. Willig is Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University. He was formerly Supervisor in the Economics Research Department of Bell Laboratories. His teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. From 1989 to 1991, Dr. Willig served as Chief Economist in the Antitrust Division of the U.S. Department of Justice, where he led the development of the 1992 Merger Guidelines. Dr. Willig is the author of *Welfare Analysis of Policies Affecting Prices and Products*, *Contestable Markets and the Theory of Industry Structure* (with William Baumol and John Panzar), and numerous articles, and he has served on the editorial boards of *The American Economic Review*, *The Journal of Industrial Economics*, and the MIT Press Series on regulation. Dr. Willig has served as a consultant and advisor for the Federal Trade Commission, the Department of Justice, OECD, the Inter-American Development Bank, the World Bank, and the governments of many nations.

Please contact me with any questions.

Marlene H. Dortch
September 30, 2009
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Yours truly,

/s/

Colin S. Stretch
Counsel for AT&T Inc.

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)

Implementation of Section 6002(b) of the)
Omnibus Budget Reconciliation Act of 1993)

WT Docket No. 09-66

Annual Report and Analysis of Competitive)
Market Conditions with Respect to Mobile)
Wireless Including Commercial Mobile)
Services)

COMMENTS OF AT&T INC.

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COMMENTS OF AT&T INC.

Pursuant to the Notice of Inquiry (“*NOI*”) released by the Commission on August 27, 2009,¹ AT&T Inc. (“AT&T”) submits the following comments.

INTRODUCTION AND SUMMARY

The Commission issued the *NOI* to expand the record developed in this proceeding several months ago, in order “to increase [its] understanding of the various segments that are part of the mobile wireless ‘ecosystem’” and “to understand the ways in which competition in the provision of mobile wireless services affects adjacent markets.” *NOI* ¶ 7. Just as AT&T’s earlier comments demonstrated that competition for mobile wireless services themselves is intense, the same is true of competition for each link in the so-called “mobile ‘value chain.’” *Id.* ¶ 9. U.S. wireless consumers enjoy choice at every level, from wireless providers, to service plans, to handsets and other devices, to operating systems, to applications. The U.S. wireless industry is leading the world in the deployment of next-generation broadband wireless networks,

¹ Notice of Inquiry, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless including Commercial Mobile Services*, WT Docket No. 09-66, FCC 09-67 (rel. Aug. 27, 2009) (“*NOI*”).

in smartphones and other devices that take advantage of these networks, and in other types of innovation, all of which has propelled massive investment and growth at a time when other industries are struggling to remain afloat. This array of new products and services, in turn, has generated unprecedented and ever increasing usage, necessitating still more network capacity and, hence, still more investment and innovation in network infrastructure.

As explained in detail in AT&T's comments in response to the *Wireless Innovation NOI*,² AT&T is at the forefront of this virtuous cycle of innovation and investment that has led to unparalleled and unprecedented competition and choice for consumers. AT&T has made massive investments – in 2008, more than any other public company in America – to deliver consumers next-generation communications services, and much of this investment has focused on wireless services.

Thus, AT&T is expanding the availability and quality of its 3G mobile broadband network, while at the same time investing heavily in 4G Long-Term Evolution (“LTE”) technology. With the introduction of the iPhone, AT&T led the smartphone revolution that has given consumers a greater mobile experience than ever before and that is rapidly transforming the industry as well as the lives of Americans of every variety from coast to coast. More recently, AT&T introduced netbooks, which are extending the industry and consumers to yet another frontier, and it continues to pioneer the use of wireless technologies in industries such as health and energy. AT&T now offers consumers more than 100 different devices, and it has been a leader in creating a robust platform for the development of applications for these devices. AT&T also continues to be a leader in traditional wireless services, offering consumers

² Notice of Inquiry, *Fostering Innovation and Investment in the Wireless Communications Market; A National Broadband Plan for Our Future*, GN Docket Nos. 09-157, 09-51, FCC 09-66 (rel. Aug. 27, 2009) (“*Wireless Innovation NOI*”).

competitive pricing plans and flexible service arrangements. In sum, AT&T's conduct alone is overwhelming proof that there is intense rivalry in the industry, which is forcing carriers to invest, innovate, and respond rapidly to the needs of consumers.

But, of course, the Commission need not and should not look just at AT&T. Over the last two decades, this Commission, marching in lock step with Congress, has taken aggressive steps to ensure a pro-competitive, de-regulatory environment for wireless that has facilitated investment and enabled competitive forces to drive innovation and consumer welfare throughout the entire industry. And the results have been outstanding. Each year since 1993 – since the Commission was first tasked by Congress with reviewing, on an annual basis, “competitive market conditions with respect to commercial mobile services”³ – the Commission has carefully examined market structure, provider conduct, consumer behavior, and market performance, and each year it has found escalating growth, declining prices, breakneck innovation, ever-increasing capital investment, and enormous contributions to consumer welfare. The record compiled earlier this year in this proceeding, moreover, again demonstrated that in every respect the wireless industry in the United States remains the most competitive segment in the U.S. telecommunications industry and the envy of the world.

Now, the Commission seeks to broaden its inquiry beyond its traditional framework, to investigate not just competition in wireless service itself, but also the conditions in the edge markets (such as devices, operating systems, and applications) that rely on wireless service, as well as in the inputs (such as spectrum and special access) necessary to provide wireless service. This broader review – albeit unnecessary to fulfill the Commission's statutory mandate –

³ 47 U.S.C. § 332(c)(1)(C).

underscores the vibrantly competitive nature of the wireless industry and highlights the enormous consumer welfare gains that this competition generates.

Most Americans can choose from among at least five facilities-based carriers, and almost all can choose from among at least three. The U.S. wireless industry is the least concentrated of the 26 major industrialized countries that make up the Organization for Economic Co-Operation and Development (“OECD”), and a recent study by the U.K.’s telecommunications regulator, which touts the U.K as the most competitive wireless market in Europe, uses metrics that demonstrate the U.S. is far more competitive. Consumer choice is likewise the defining feature of wireless “edge” markets: U.S. consumers can choose from over 600 handsets from more than 30 manufacturers, from feature phones used primarily for voice and texting, to “qwerty” devices for heavy texting and email, to smartphones for more varied broadband applications. Consumers can pick phones that run the operating system of their choice, and they have access to tens of thousands of applications from a range of “application stores.” The volume of applications consumers have downloaded is now counted in the billions.

But these numbers, impressive as they are, tell only part of the story. What is notable about consumer choice in the wireless industry – and what sets it apart from the wireline world – is the degree to which consumers have a choice not only in the devices and services they purchase, but also in the degree to which they can control the applications that run on their devices. With the advent and proliferation of “app stores,” consumers now have access to many tens of thousands of wireless applications. To be sure, most app stores screen or certify applications they make available, to ensure quality and protect consumers and networks from applications that might threaten privacy or network security, for example. That model has been extremely successful, as many consumers prefer the choice and convenience it offers, together

with the confidence and security that comes from obtaining applications through a source that has verified their safety and efficiency.

At the same time, those who prefer a different environment – one in which consumers themselves, rather than app store owners, assume responsibility for avoiding potentially harmful apps – have options. Google’s popular Android operating system, for example, is avowedly “open”: developers can make available any applications at all, and it is up to the users to determine whether they are safe and effective. As Google acknowledges, “not having a pre-approval process can lead to a lot of shoddy and useless applications being passed through,”⁴ but that is a risk a customer can choose to take. Likewise, in the recently concluded 700 MHz auction, the Commission – in a rare departure from its long-held policy of licensing spectrum without restrictions, on a flexible-use basis – attached strict conditions to the C block that require the licensee to permit subscribers to attach any device and run any application, thus setting in motion an experiment pursuant to which consumers will be guaranteed additional choices of services and devices with even less manufacturer or network provider management of the applications the customer can run.

It would be a profound mistake, however, to assume that, because some customers may prefer such an environment, all customers do. U.S. wireless penetration exceeds 270 million, and more than 87 percent of the population in this country has a wireless phone. Many of these customers may be technologically sophisticated and eager to take on the challenge of policing the applications they use on their phones. But many others may not be, and still others may lack the time or interest to undertake that role. As it stands today, the wireless industry gives *all* customers a choice: among network providers, among handsets, among operating systems,

⁴ See *infra* p. 67.

among applications, and – critically – in the degree to which they assume responsibility for the efficiency, security, and safety of the applications that run on their device.

The customer choice available in wireless today provides the lens through which the Commission should view all issues affecting the industry. The standard measures the Commission has traditionally used to gauge competition – *e.g.*, subscribership, pricing trends, and usage – are still relevant, and, as we detail below, those measures continue to demonstrate fierce competition in the industry. But the facts here establish two additional, critical propositions: Consumers have a broad array of choices in all aspects of their service, and carriers are investing enormous sums to enhance consumer choice still further. Those realities – the consumer choice that characterizes the industry, and the ongoing investment of billions upon billions of dollars even in an economic downturn – cannot be taken for granted. As the Commission undertakes its broader, more comprehensive analysis of the industry, it must be vigilant to ensure that the policies that result from its analysis do not impede consumer choice or diminish carriers' incentives to invest.

* * *

These comments are organized into two parts. Part I highlights the extensive choices available to retail purchasers of wireless service. It begins by describing the competitive indicia the Commission has traditionally used to gauge competition in the wireless industry, and explains that those indicia reveal, yet again, a vibrantly competitive marketplace. Indeed, although it can sometimes get lost in the excitement of smartphones and novel new applications, the data show that many conventional cell phone users – in particular, a large segment of the rapidly increasing number of customers that rely on pre-paid plans – are paying 60 percent less for service than they were just six months ago.

After exploring these and other facts relating to retail wireless service, Part I then addresses the “edge” market segments highlighted in the *NOI* – in particular, the device, operating system, and application market segments – and explains the array of options available to consumers, not just in what devices they use, but also in the degree to which consumers take responsibility for ensuring the safety, reliability, and efficiency of the applications they use on those devices. Part I concludes by discussing the widespread availability of wireless service – including the latest handsets and advanced features and services – in the overwhelming majority of rural areas in the U.S.

In Part II, AT&T addresses the “mobile ‘value chain,’” including spectrum and non-spectrum inputs that carriers require to provide service. As to spectrum, AT&T highlights the overarching need to make available more spectrum for wireless use, particularly to meet consumers’ ever-increasing appetite for wireless broadband, as well as the importance of licensing that spectrum with limited restrictions and keeping it free from interference. As to non-spectrum inputs, AT&T discusses the explosive growth in competitive wireless backhaul facilities, which should put to rest competitors’ claims that special access regulation is necessary to permit competition in wireless (if the explosive competition in wireless service itself has not already done so). Part II also responds to the Commission’s request for comment on roaming, explaining that the current roaming regulatory framework – which makes it mandatory in most circumstances to offer automatic roaming for common-carrier services, but allows competition to drive roaming for information services – is amply sufficient to facilitate competition and consumer choice.

I. EACH RETAIL SEGMENT IN THE WIRELESS “ECOSYSTEM” IS CHARACTERIZED BY COMPETITION, CONSUMER CHOICE, AND ROBUST INVESTMENT

The Commission issued its first Wireless Competition report in 1995, at a time when the marketplace was still characterized by Commission-sanctioned duopolies. There were 24 million wireless subscribers nationwide, and the Commission highlighted the service’s “ten percent penetration rate,” noting that “no one [had] predicted that the service would be as popular as it has become.”⁵ Cellular phones were large and unwieldy devices that, in limited coverage areas, allowed only basic voice calls and nothing else, and which were pitched primarily as a “business tool.”⁶

The wireless industry’s extraordinary growth since that point is due to many factors, but one takes precedence above all others: the consistent, bipartisan commitment of this Commission and Congress to put in place a pro-competitive, de-regulatory framework that would create certainty, facilitate investment, and unleash innovation. Thus, in the 1990s, the Commission moved aggressively to transform the industry from one characterized by market-by-market duopoly to one characterized by multiple facilities-based competitors. The Commission licensed multiple carriers in each market,⁷ forbore from spectrum ownership limitations,⁸ and

⁵ First Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 10 FCC Rcd 8844, ¶ 3 (1995).

⁶ *Id.*

⁷ See William C. Beckwith, *Cutting the Cord: Removing the CMRS Spectrum Cap To Promote Wireless-Landline Convergence and Wireless Alternatives in the Local Loop*, 7 CommLaw Conspectus 369, 371 n.19 (1999) (citing Council of Economic Advisors, *Progress Report: Growth and Competition in U.S. Telecommunications 1993-1998*, at 14 (Feb. 8, 1999) (showing “full-fledged competition” in wireless services as the Commission began to “creat[e] new wireless licensees in U.S. markets”)).

⁸ See Report and Order, *Year 2000 Biennial Regulatory Review – Amendment of Part 22 of the Commission’s Rules to Modify or Eliminate Outdated Rules Affecting the Cellular*

phased out the requirement to maintain analog network capabilities in light of the competitive state of the industry.⁹ The Commission also embraced a policy of flexible, exclusive-use, geographically defined licenses that allowed carriers to choose the business models that would enable them to compete.¹⁰ For its part, Congress preempted state regulation of wireless rates,¹¹ eliminated the restriction on Bell companies' provisioning of wireless long distance,¹² and authorized the use of competitive bidding for CMRS and other wireless licenses.¹³ Through these and other procompetitive steps – many of which are discussed in AT&T's comments in response to the *Wireless Innovation NOI* – the Commission and Congress enabled the emergence of multiple robust, facilities-based providers, and permitted them to compete in a vibrantly competitive environment that *demand*ed investment and innovation.

Radiotelephone Service and other Commercial Mobile Radio Services, 17 FCC Rcd 18401, ¶ 47 (2002).

⁹ See *id.* ¶ 8 (modifying 47 C.F.R. §§ 22.901 and 22.933 (2000) in light of the “competitive state of mobile telephony”).

¹⁰ See, e.g., Report and Order, *Amendment of Parts 2 and 22 of the Commission's Rules To Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecommunications Service*, 3 FCC Rcd 7033 (1988) (the “Liberalization of Technical and Auxiliary Offerings” Order of 1988).

¹¹ See 47 U.S.C. § 332(c)(3)(A) (“no State or local government shall have any authority to regulate the entry of or the rates charged by any commercial mobile service or any private mobile service”).

¹² *Id.* § 271(b)(3), (g)(3) (permitting Bell companies to provide “incidental interLATA services,” which include “commercial mobile services”).

¹³ See Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, tit. VI, § 6002(b), 107 Stat. 312, 387-392 (1993); see *id.* 107 Stat. at 389 (the Commission shall “prescribe area designations and bandwidth assignments that promote . . . an equitable distribution of licenses and services among geographic areas” and “investment in and rapid deployment of new technologies and services”), *codified at* 47 U.S.C. § 309(j)(4)(C) (2008).

As we now discuss in detail – and as discussed in the attached declaration of Robert D. Willig¹⁴ – the results speak for themselves. The U.S. wireless industry is the most competitive in the world, and, as a direct result, it is driving innovation and infrastructure investment at a pace that, even a few years ago, would have been unrecognizable.

A. The Wireless Industry As a Whole Is Thriving by Giving Consumers Unparalleled and Unprecedented Choice

The U.S. mobile “ecosystem” is characterized by choice at every level. As noted at the outset, most Americans can choose from among at least five facilities-based carriers and almost all consumers can choose from among at least three or more.¹⁵ New nationwide wireless networks such as Clearwire are being deployed, while many smaller carriers (such as Leap, MetroPCS, and Cellular South) are growing rapidly.¹⁶ Facilities-based wireless carriers have

¹⁴ See Declaration of Robert D. Willig, WT Docket No. 09-66 (FCC filed Sept. 30, 2009) (“Willig Decl.”) (attached hereto). Dr. Willig is Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University. He was formerly Supervisor in the Economics Research Department of Bell Laboratories. His teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. From 1989 to 1991, Dr. Willig served as Chief Economist in the Antitrust Division of the U.S. Department of Justice, where he led the development of the 1992 Merger Guidelines. Dr. Willig is the author of *Welfare Analysis of Policies Affecting Prices and Products, Contestable Markets and the Theory of Industry Structure* (with William Baumol and John Panzar), and numerous articles, and he has served on the editorial boards of *The American Economic Review*, *The Journal of Industrial Economics*, and the MIT Press Series on regulation. Dr. Willig has served as a consultant and advisor for the Federal Trade Commission, the Department of Justice, OECD, the Inter-American Development Bank, the World Bank, and the governments of many nations.

¹⁵ See Thirteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 24 FCC Rcd 6185, ¶ 2 (2009) (“Thirteenth Report”) (more than 95 percent of the U.S. population lives in census blocks with at least three competing mobile operators, and more than 60 percent lives in census blocks with at least five competing providers).

¹⁶ See, e.g., Clearwire News Release, *Clearwire Introduces CLEAR™ 4G WiMAX Internet Service in 10 New Markets* (Sept. 1, 2009), <http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1326282&highlight=> (Clearwire currently provides WiMAX service in 14

also voluntarily leased capacity on their networks to a range of Mobile Virtual Network Operators (“MVNOs”), which give consumers additional options by reselling service together with unique content and devices.¹⁷ The U.S. wireless marketplace is the most competitive and least concentrated in the world.¹⁸

But the choice customers have among wireless providers is only the beginning. Competition among these providers has created a market imperative to differentiate their services, which is manifest, first, in the array of service offerings available for every type of wireless customer. There are prepaid offerings for light cell phone users at one end of the spectrum, unlimited everything (calling, text, data, etc.) plans at the other end of the spectrum,

markets covering more than 10 million people); Clearwire News Release, *Clearwire Reports Second Quarter 2009 Results* (Aug. 11, 2009), <http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1319733&highlight=> (Clearwire plans to extend its network to more than 30 million people in more than 25 markets by the end of 2009, and to 120 million people across 80 markets by the end of 2010); MetroPCS Press Release, *MetroPCS Reports Second Quarter 2009 Results* (Aug. 6, 2009), <http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1317658&highlight=> (MetroPCS increased its number of covered POPs by 31 million from 2Q08 to 2Q09); Leap Wireless Press Release, *Leap Reports Nearly 30 Percent Year-Over-Year Improvements in Second Quarter Adjusted OIBDA and Service Revenues* (Aug. 6, 2009), <http://phx.corporate-ir.net/phoenix.zhtml?c=95536&p=irol-newsArticle&ID=1318295&highlight=> (Leap increased its number of covered POPs by 29 million from 2Q08 to 2Q09); Cellular South News Release, *Cellular South Expands 3G High-Speed Mobile Broadband Data Services Throughout Much of Mississippi Delta Region* (Aug. 4, 2009), <https://www.cellularsouth.com/news/2009/20090804.html> (Cellular South recently began offering 3G mobile broadband services in 15 counties and 60 cities in the Mississippi Delta as the company continues to expand 3G services across its footprint).

¹⁷ See *Thirteenth Report* ¶¶ 17-18.

¹⁸ See *The United States and World Wireless Markets: Competition and Innovation Are Driving Wireless Value in the U.S.*, at 6, 11 (May 2009) (“CTIA Study”), attached to Ex Parte Letter from Christopher Guttman-McCabe, CTIA, to Marlene Dortch, FCC, RM-11361, GN Docket No. 09-51, WC Docket No. 07-52 (FCC filed May 12, 2009) (the United States wireless marketplace is the least concentrated of the 26 OECD countries tracked by Merrill Lynch).

and countless variation in between.¹⁹ In the last few months alone, a wide number of prepaid plans have been announced that offer unlimited voice and text messaging, plus a significant amount of data usage, for \$40-\$45 per month – a 60 percent decrease from the prevailing prices just six months ago.²⁰ Numerous websites have sprung up to help consumers navigate among the array of service plans and to select the carrier and plan that best meets their needs.²¹ And consumers can also choose from a stream of new, innovative service arrangements. In the case of Amazon's Kindle, for example, customers obtain lifetime wireless service for the limited purpose of downloading books, built-in to the price of the hardware and associated content.²²

¹⁹ See, e.g., Jason Armstrong et al., Goldman Sachs, *2Q09 Wireless Survey: Phone Subsidies Rise, Prepaid Competition Up*, at 7, Exhibit 7 (June 29, 2009) (comparing examples of low usage, mid usage, and high usage offerings); Phil Cusick et al., Macquarie Research, *Slumdog Millionaires*, at 20 (May 1, 2009) ("Prepaid growth for the industry, in our view, is either at the low-end (very cheap, limited service under US\$20/month) or high-end prepaid with unlimited usage for US\$40-50/month.").

²⁰ See, e.g., Craig Moffett et al., BernsteinResearch, *Quick Take – U.S. Telecommunications: Another LEAP into the Abyss (of Pre-Paid Pricing)*, at 1, 2, Exhibit 1 (Aug. 4, 2009) ("In the just over six months since Sprint cut its *Boost Unlimited* price to \$50, prevailing unlimited pre-paid prices have fallen by a staggering 60%." Following Sprint's price cut in January, T-Mobile reduced prices for existing customers of its pre-paid service from \$100 to \$50; Virgin Mobile reduced its price from \$80 to \$50; Tracfone introduced a \$45 unlimited voice and text plan with 30 MB of data; MetroPCS added features to all of its plans, effectively reducing prices by more than 10 percent; and Leap added unlimited mobile web service to its \$40 plan.); Mike McCormack et al., J.P. Morgan, *A New Look at Wireless Subscriber Trends*, at 1 (June 1, 2009) ("We believe customers are finding compelling value in pay-in-advance offerings. Given that the pay-in-advance carriers offer unlimited voice, text, and data functionality for \$40-\$50 per month, the national carriers are likely to see pressure on their growth and customer base as consumers look to reduce monthly expenses and find competing offers more compelling.").

²¹ See, e.g., Wireless Advisor, <http://www.wirelessadvisor.com>; Wirefly, <http://www.wirefly.com>; Phone Scoop, <http://www.phonescoop.com>; LetsTalk, <http://www.letstalk.com>; AmazonWireless, <http://wireless.amazon.com/>.

²² See Amazon News Release, *Introducing Kindle DX – Amazon's Large Screen Addition to the Kindle Family of Wireless Reading Devices* (May 6, 2009), <http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1285140&highlight=> ("Amazon . . . pays for the wireless connectivity on Kindle . . . so books can be downloaded in less than 60 seconds – with no monthly fees, data plans, or service contracts.").

Likewise, Garmin's state-of-the-art portable navigation device (the nuvi 1690) now comes with two years of 3G service built-in to the price of the device, after which data service is available for \$5 per month.²³

Consumer choice in the industry extends not just to the wireless services they buy and how they pay for them, moreover, but also to the devices they use. Consumers can now choose from more than 600 different types of handsets and wireless devices from more than 30 manufacturers.²⁴ Here, too, there are devices for every type of customer, from simple handsets with large numeric keypads, to BlackBerries and other types of PDAs with full "qwerty" keyboards that are ideal for heavy texting and e-mail, to smartphones optimized for heavy data usage, to wireless-enabled "netbooks" designed for robust Internet access.²⁵ And, just as they do with respect to wireless service, consumers can choose not only which handsets they use, but also how to purchase them: whether they are served by a large carrier or a small one – and whether they live in an urban area or a rural one – consumers generally have the option to

²³ See AT&T News Release, *Garmin nuvi 1690 and nuLink! To Connect Drivers to Real Time Data Through AT&T Wireless Network* (Sept. 17, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27141>.

²⁴ See *CTIA Study* at 11.

²⁵ See, e.g., AT&T, *Cell Phones & Devices*, <http://www.wireless.att.com/cell-phone-service/cell-phones/index.jsp>; Verizon Wireless, *Phones & Accessories*, <http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewStoreIndex&lid=//global//phones+and+accessories>; Sprint Nextel, *Phones*, <http://www.sprint.com/index.html>; T-Mobile, *Choose a Phone*, http://www.t-mobile.com/shop/phones/?WT.z_unav=mst_shop_phones; U.S. Cellular, *Phones*, http://www.uscc.com/uscellular/SilverStream/Pages/b_showphone.html; MetroPCS, *Phones: Buy a Phone*, <http://www.metropcs.com/shop/phonelist.aspx>; Cricket (Leap Wireless), *Phones*, <http://www.mycricket.com/cricketphones/>.

purchase wireless devices at a subsidized price in exchange for a term plan, or they can eschew a commitment and pay the full retail price.²⁶

Consumers also have the ability to use their wireless services and devices to access a vast and rapidly increasing array of content from a wide variety of sources. Here, again, the operative concept is choice. Consumers can choose to access content on the Internet, they can download applications from one of the rapidly proliferating mobile application stores now available, or they can obtain proprietary content from their wireless service provider or device supplier. Indeed, as highlighted at the outset, consumers even have a choice in the degree to which they manage the operating systems and associated applications that run on their devices. Customers who wish to take responsibility for the efficiency and security risks inherent in downloading apps can choose a device that runs Google's Android operating system and, therefore, that runs any of the multitude of applications that have been developed for Android's "open source" platform. Consumers can also obtain a laptop card and connect to the Internet over a wireless connection just as they do with their home computer using a broadband connection. And, in the future, consumers will also be able to choose a service that runs on Verizon's 700 MHz C block spectrum, to which the Commission attached "open access" conditions that go beyond the requirements applicable to licensees of any other Commission-licensed spectrum and that were intended to permit the Commission to "observe the real-world effects" of such unprecedented

²⁶ See, e.g., Mike McCormack et al., J.P. Morgan, *A New Look at Wireless Subscriber Trends*, at 2, Table 1 (June 1, 2009) (comparing postpaid, prepaid, and pay-in-advance plans); AT&T Wireless, *Shopping Online – Top Questions and Answers*, <http://www.wireless.att.com/learn/basics/shopping-faqs.jsp#106> (AT&T's "no-commitment pricing" does not require a two-year contract or other long-term service commitment, and is available to customers that are not on a prepaid or GoPhone plan); *supra* note 74.

regulation.²⁷ By contrast, customers who prefer the confidence that comes from knowing applications have been reviewed for compatibility and security can choose the iPhone, a BlackBerry device (such as the Storm, Tour, or Bold models), or the Palm Pre. A wide variety of business models have thus evolved – and are continuing to evolve – to meet consumer demand for innovative new services, from the strict open source model required by the 700 MHz C block spectrum, to the Google Android model, to the slightly more protected environment of Apple’s iPhone, to special-purpose devices such as Amazon’s Kindle.

The choices the industry provides to customers have enabled wireless to thrive and to become a major engine of growth and investment for the U.S. economy as a whole. The industry has succeeded in making wireless services of every variety available and affordable to all Americans, which has in turn propelled rapid increases in subscribers and usage and thus enabled carriers to invest heavily to provide even greater choice. In the midst of the most severe economic downturn since the Great Depression, the four national carriers have continued to invest heavily in their networks. U.S. wireless carriers spent \$20.17 billion in capital expenditures in 2008,²⁸ and the major wireless providers are on track to invest the same amount in 2009, if not more.²⁹ Moreover, investment by new entrants, such as Clearwire, and smaller

²⁷ Second Report and Order, *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, 22 FCC Rcd 15289, ¶ 205 (2007) (“*Second Report and Order*”); see also Comments of AT&T Inc., at 115-17, *Fostering Innovation and Investment in the Wireless Communications Market; A National Broadband Plan for Our Future*, GN Docket Nos. 09-157, 09-51 (FCC filed Sept. 30, 2009) (“*AT&T Wireless Innovation NOI Comments*”) (discussing C block requirements).

²⁸ See Comments of CTIA – The Wireless Association, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 12-13 (FCC filed Aug. 31, 2009) (this investment yields “a total cumulative capital expenditure in operational systems of more than \$90 billion over the last four years (not including the billions of dollars paid to the federal treasury for spectrum, or investment in pre-operational systems)”).

²⁹ See, e.g., Simon Flannery et al., *Morgan Stanley, 2Q Trend Tracker: Attractive Valuations & Share Shifts Favor the Bells*, at 87, Exhibit 132 (Aug. 31, 2009) (comparing

carriers, such as Leap and MetroPCS, are at record levels, expected to reach more than \$20 billion this year.³⁰ The wireless industry has thus been one of the few engines of investment, growth, and stability in a U.S. economy that has otherwise been battered by recession.

And the industry is poised to continue that role. AT&T, which has already deployed its 3G mobile broadband network to 350 U.S. major metropolitan areas, will add about 20 additional metro areas later this year; it is also devoting more spectrum to this network and upgrading it to HSPA 7.2 technology.³¹ That is so even as AT&T continues its plans to deploy LTE, with trials scheduled for 2010 and deployment expected to begin in 2011.³² Verizon's 3G network covers approximately 95 percent of the U.S. population,³³ and Verizon is now in the

estimated 2009 capex for Verizon Wireless, AT&T, Sprint, and T-Mobile of \$19.0 billion with 2008 capex of \$18.7 billion); David Barden et al., Bank of America/Merrill Lynch, *2Q09 Telecom Results Heads Up and Model Handbook*, at 28 (July 17, 2009) ("We project an increase of 1.6% YoY in aggregate wireless capex for 2009. . . . In aggregate, after a 5.4% increase in 2008 to \$20.6 billion, we forecast 2009 spending of \$20.9 billion . . . driven by increases from Clearwire, Verizon, and AT&T."); Phil Cusick et al., Macquarie Research, *Follow the Money: 2Q Telco and Cable Capex Preview*, at 1 (July 23, 2009) ("We believe the major carriers will maintain or increase their capex budgets for 2009.").

³⁰ See David Barden et al., Bank of America/Merrill Lynch, *2Q09 Telecom Results Heads Up and Model Handbook*, at 28 (July 17, 2009).

³¹ See AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835>; AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068>. AT&T plans to deploy HSPA 7.2 in 25 of the nation's 30 largest markets by the end of 2010, and to reach approximately 90 percent of its existing 3G network footprint with HSPA 7.2 by the end of 2011. See AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068>.

³² See AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835>.

³³ See Verizon Wireless, *Network Facts*, http://aboutus.vzw.com/bestnetwork/network_facts.html (Verizon Wireless's 3G network covers 284 million people following the Alltel acquisition – more than 98 percent of Americans covered by Verizon Wireless's network).

process of upgrading to LTE technology.³⁴ Sprint is already replacing its current 3G network with its next-generation wireless network (using WiMAX technology), and Sprint expects to expand this next-generation coverage significantly.³⁵

Smaller carriers are likewise expanding their broadband wireless footprint: U.S. Cellular's 3G network covers 40 percent of its customer base, including in "many unserved and underserved areas," and it plans to more than double that number by the end of this year;³⁶ U.S. Cellular also expects to conduct field trials of LTE technology in 2009 and 2010.³⁷ MetroPCS has announced that it too will deploy LTE technology, with a target of the second half of 2010.³⁸ Leap already operates a 3G network and expects to undertake LTE trials in late 2009 and 2010.³⁹

³⁴ See Verizon Wireless News Release, *Verizon Wireless Updates Specifications for 4G LTE 700 MHz Devices* (Aug. 21, 2009), <http://news.vzw.com/news/2009/08/pr2009-08-21.html> ("Verizon Wireless expects to commercially launch its LTE 4G network in up to 30 markets in 2010, covering 100 million people. In subsequent years, an equally aggressive growth plan will result in full nationwide coverage in 2013. The company's LTE network will ultimately connect a full range of electronics devices and machines.").

³⁵ See Sprint News Release, *Sprint's Now Network Powers Palm Pre Success* (June 11, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1298492&highlight=.

³⁶ See U.S. Cellular Press Release, *U.S. Cellular Reports Second Quarter Results* (Aug. 6, 2009), <http://phx.corporate-ir.net/phoenix.zhtml?c=106793&p=irol-newsArticle&ID=1317829&highlight=>; U.S. Cellular, *Expanding Wireless Broadband Wireless Services and Increasing Wireless Competition* (Sept. 8, 2009), attached to Letter from W. Lavey, Counsel of USCC, to M. Dortch, FCC, Docket Nos. 09-51 et al. (filed Sept. 9, 2009).

³⁷ See U.S. Cellular and TDS Presentation at the Kaufman Bros. 12th Annual Investor Conference at 18 (Sept. 10, 2009), <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTUyNjh8Q2hpbGRJRD0tMXxUeXBIPtM=&t=1>.

³⁸ See, e.g., MetroPCS Press Release, *Unlimited Wireless Carrier MetroPCS Announces Vendors for 2010 4G LTE Launch* (Sept. 15, 2009), <http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1331809&highlight=>.

³⁹ See David Barden et al., Bank of America/Merrill Lynch, *2Q09 Wrap: Taking Optimism Out of the Model; PO to \$28*, at 6 (Aug. 7, 2009).

Cox too is building its own 3G wireless network and plans to test LTE technology.⁴⁰ Cincinnati Bell launched its 3G service in the fourth quarter of 2008.⁴¹ Cellular South's 3G service is available in areas that reach two-thirds of the people in Mississippi, in 29 of the state's 30 largest cities, and the company continues to upgrade its network.⁴² These carriers – and many others⁴³ – are thus standing right alongside the national carriers in investing in next-generation networks capable of meeting consumers' wireless broadband needs.

These network initiatives represent billions upon billions in capital investment and untold thousands of jobs – investment and jobs that are direct evidence of the robust competition that characterizes the industry, and that represent one of the few economic bright spots in a time when capital spending has plummeted and jobs continue to decline.

⁴⁰ See Cox Press Release, *Cox To Launch Next Generation Bundle with Wireless in 2009* (Oct. 27, 2008), <http://cox.mediaroom.com/index.php?s=43&item=19>.

⁴¹ Cincinnati Bell Inc., Form 10-K, at 5 (SEC filed Feb. 26, 2009).

⁴² See Cellular South News Release, *Cellular South Expands 3G High-Speed Mobile Broadband Data Services Throughout Much of Mississippi Delta Region* (Aug. 4, 2009), <https://www.cellularsouth.com/news/2009/20090804.html>.

⁴³ Stelera Wireless offers wireless broadband service in south Texas using HSPA technology, and plans to offer service in 55 cities by the end of 2009 and to continue to build out its network in 2010. See Stelera Wireless Press Release, *Stelera Wireless Launches Wireless Broadband Network; Cutting Edge Internet Services Launched in South Texas* (Mar. 23, 2009), <http://dev.stelerawireless.com/Portals/0/docs/National%20STX%20Press%20Release.docx>. nTelos Wireless, which provides service in Virginia and West Virginia, has upgraded 86 percent of its cell sites to EV-DO. nTelos Holdings Corp., Form 10-Q (SEC filed Aug. 6, 2009) (upgrades as of June 30, 2009); see also nTelos Press Release, *nTelos Completes \$46 Million Upgrade to 3G Network* (July 8, 2009), <http://www.ir-site.com/images/library/ntelos/07-08-09.html> (nTelos completed EV-DO upgrades in Richmond and Hampton Roads, Virginia). Appalachian Wireless, which serves 20 counties in eastern Kentucky and western Virginia, also offers EV-DO service. See Appalachian Wireless, <http://www.appalachianwireless.com/>. And Mobi PCS operates a statewide 3G network in Hawaii. See Mobi PCS Press Release, *Coral Wireless dba Mobi PCS Joins Associated Carrier Group* (July 20, 2009), <http://www.mobipcs.com/releases/20090720.php>.

B. Every Consumer Segment Is Characterized by Robust Competition

The Commission's statutory mandate in this proceeding is to "review competitive market conditions with respect to commercial mobile services," including "an analysis of whether . . . there is effective competition" among providers of such services.⁴⁴ As noted at the outset, the Commission has historically fulfilled that mandate by examining established and widely accepted indicators of effective competition: market structure, provider conduct, consumer behavior, and market performance.⁴⁵ This "structure-conduct-performance" framework has resulted in extensive, thorough reports that have uniformly established that the wireless marketplace is characterized by "effective competition" under any reasonable understanding of that term.⁴⁶

The Commission's established framework continues to capture the most relevant measures for fulfilling the Commission's statutory mandate. Indeed, when the Commission asked earlier this year whether it should modify its analytical framework for assessing competition in the wireless industry, the overwhelming majority of commenters said "no." That

⁴⁴ 47 U.S.C. § 332(c)(1)(C).

⁴⁵ See, e.g., *Thirteenth Report* ¶ 5; *Ninth Report, Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 19 FCC Rcd 20597, ¶¶ 8, 17 (2004) ("*Ninth Report*").

⁴⁶ *Thirteenth Report* ¶ 274; *Twelfth Report, Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 23 FCC Rcd 2241, ¶ 293 (2008) ("*Twelfth Report*"); *Eleventh Report, Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 21 FCC Rcd 10947, ¶ 216 (2006) ("*Eleventh Report*"); *Tenth Report, Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 20 FCC Rcd 15908, ¶ 207 (2005) ("*Tenth Report*"); *Ninth Report* ¶ 225; *Eighth Report, Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 18 FCC Rcd 14783, ¶ 220 (2003) ("*Eighth Report*").

broad consensus reflects the fact that the Commission's structure-conduct-performance framework addresses the full range of economic indicators that economists review to assess the performance of an industry. The Commission has elsewhere defined "[e]ffective competition" to "mean[] competition among service providers in a market that benefits consumers by expanding service offerings, promoting development of innovative technology, and lowering prices."⁴⁷ By asking (1) whether the market is structured to permit entry and competition; (2) whether providers are competing on the merits in order to attract and retain customers; (3) whether consumers are adequately informed and able to switch among providers; and (4) whether the industry as a whole exhibits the hallmarks of competition (such as competition on price, expansion of output, and improvement of service quality), the Commission's established framework tracks that definition and enables collection of the data necessary to meet its statutory mandate.

The *NOI* nevertheless proposes to broaden the Commission's inquiry to analyze competition not just in the provision of wireless service, but across the "entire mobile wireless market ecosystem." *NOI* ¶ 14. The Commission thus proposes to investigate competition for additional market segments that make up the "the entire mobile 'value chain'" (*NOI* ¶ 9), including devices and other "edge markets" such as operating systems, applications, and content. This expanded inquiry will only confirm the dynamic competition and unparalleled consumer choice that characterize the market today.

⁴⁷ Report and Order, *Market Entry and Regulation of Foreign-Affiliated Entities*, 11 FCC Rcd 3873, ¶ 1 (1995); see Public Notice, *Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition*, 24 FCC Rcd 5618, 5620 (2009).

1. Retail Service Market Segments Are Highly Competitive

The Commission seeks comment, first, on “the forces that drive adoption and demand” of mobile wireless services, including identification of “the different consumer market segments that [the Commission] should analyze to assess the effectiveness of these competitive forces.” *NOI* ¶ 13.

Although the Commission will find extensive competition for every market segment, it is important that it not draw artificial distinctions that do not reflect the way wireless services are purchased, sold, and used. Many consumers use their wireless services and devices for both voice and data – not just as part of the same plan but as part of the same communication (as when a customer elects not to leave a voicemail and sends a text instead, or sends a text or e-mail instead of making a call in the first place). That trend will only continue, as advances in network innovation permit consumers to email, text, browse the web, or even share live video from their location while simultaneously holding a voice conversation using the same device. In view of these marketplace realities, it makes little sense to define and investigate “voice” and “data” as separate markets. The same is true for “consumer” and “business” segments: many customers use a single device for their personal and professional communications, thus compromising any effort to subdivide the wireless market into distinct customer segments. And “prepaid” and “postpaid” refer, not to separate products, but rather to separate ways of paying for the same product – indeed, analysts have highlighted that the recent price war among prepaid providers “is increasingly cannibalizing the lower end of the postpaid market” and “could lead to pricing pressure in the postpaid market over time.”⁴⁸

⁴⁸ John Hodulik et al., UBS, *Data Pricing Is the Linchpin*, at 6 (June 22, 2009).

But however the Commission chooses to analyze the retail market segment – whether as an undifferentiated whole or as the sum of a variety of service offerings each viewed in isolation – all of the data, related to every conceivable service offering and measured by any conceivable metric, demonstrates effective competition.

Multiple Providers. First, as noted above, the wireless marketplace today includes four national wireless carriers, three large regional providers, and dozens of smaller providers. In addition, there are dozens of MVNOs that obtain capacity from facilities-based providers and use it to compete against them (and each other). These wireless carriers compete directly with each other in every respect – they provide broad geographic coverage (using a combination of their own facilities, resale, and roaming arrangements), a range of services (including wireless, texting, and broadband), and a range of devices (including handsets, smartphones, and netbooks). No single wireless carrier has anything approaching a dominant market share. From the perspective of Wall Street analysts, the wireless industry is *too* competitive – the large number of players has led to fierce price wars, and in turn to shrinking average revenue and profits, which is unattractive from a shareholder perspective, though obviously very favorable for consumers.⁴⁹

⁴⁹ See, e.g., Craig Moffett et al., Bernstein Research, *Quick Take – U.S. Wireless: Sifting Through the Wreckage . . . A Q2 Scorecard*, at 2 (Aug. 6, 2009) (noting that price wars “leave[] the Wireless industry in a quandary,” where “[s]ubsidies are rising rapidly” and “[m]argins would appear at risk.”); Craig Moffett et al., Bernstein Research, *Sprint (S) and T-Mobile USA (DTE): Finally Some Good News in U.S. Wireless . . . Winners and Losers from a Possible Deal*, at 1 (Sept. 14, 2009) (noting “[t]he U.S. Wireless market is crying out for consolidation,” and “[t]he problem, put simply, is that there are too many cooks in the kitchen. In most markets, there are as many as seven different price actors.”); Mike McCormack et al., J.P. Morgan, *Telecom Buzz: A New Look at Wireless Subscriber Trends*, at 1, 5 (June 1, 2009) (suggesting “[t]he proliferation of Leap and [MetroPCS] is taxing the competitiveness of the industry, mitigating the benefits of consolidation reaped over the last half decade. . . . [C]onsumers now have a half dozen or more carriers to choose from when selecting a wireless provider. The abundance of service providers is somewhat reminiscent of the early part of the decade,” and consolidation may “help stabilize the industry”).

The large number of U.S. wireless carriers also compares favorably to market structures abroad. As a recent study found, the U.S. wireless industry is the least concentrated of the 26 major industrialized countries that make up the OECD.⁵⁰ Another recent study by Ofcom, the regulatory agency in the United Kingdom, found the U.K. to be the most competitive wireless market in Europe,⁵¹ and, by the standards employed in reaching that conclusion, the U.S. wireless market is even more competitive and less concentrated: In the U.K., even prior to the recently announced merger between the third and fourth largest wireless carriers (O2 and T-Mobile), the top four wireless carriers serve 93.5 percent of the market, and the top five serve 100 percent; in the U.S., the top four wireless carriers served 85 percent of the market as of the end of 2008, and the top five served less than 90 percent.⁵²

If anything, moreover, the concentration levels in the United States understate the degree of competition in wireless. To the extent it is relevant at all, concentration matters because it provides a shorthand mechanism for assessing the likelihood of coordinated behavior.⁵³ In the U.S. wireless industry, however, the range of available products and service bundles (*e.g.*, voice, texting, Internet, email, music, video, GPS), coupled with the variation in providers' pricing

⁵⁰ See *CTIA Study* at 6 (the United States wireless marketplace is the least concentrated of the 26 OECD countries tracked by Merrill Lynch, citing Merrill Lynch, *Global Wireless Matrix 4Q08*; the four OECD countries not tracked by Merrill Lynch are Iceland, Ireland, Luxembourg, and the Slovak Republic).

⁵¹ See Ofcom News Release, *Ofcom Pledges Further Consumer Protection for Mobile Users and Publishes 3G Mobile Coverage Maps for the First Time* (July 8, 2009), http://www.ofcom.org.uk/media/news/2009/07/nr_20090708 ("The UK has the most competitive mobile industry in Europe with five mobile network operators."); see also U.K. Office of Communications (Ofcom), *Mostly Mobile: Ofcom's Mobile Sector Assessment, Second Consultation* (July 8, 2009), <http://www.ofcom.org.uk/consult/condocs/msa/msa.pdf>.

⁵² See Letter from Christopher Guttman-McCabe, CTIA, to Marlene Dortch, FCC, WT Docket No. 09-66, at 2 (Sept. 10, 2009).

⁵³ See, *e.g.*, *Thirteenth Report* ¶¶ 29, 63; DOJ/FTC Horizontal Merger Guidelines § 2.1, available at <http://www.usdoj.gov/atr/public/guidelines/hmg.htm#21>.

strategies (*e.g.*, rollover minutes, free night and weekend calling, free in-network calling, and handset subsidies) and handset offerings, precludes any serious risk that carriers could or would coordinate the prices, terms or conditions of service. And even if that were not the case, any such coordination would quickly break down, as the pace of innovation and the speed with which providers alter their terms and offerings would render it next to impossible to maintain any sort of coordination strategy.

What is more, concentration figures in the wireless industry reflect static market share, not the dynamic rate at which competition is occurring today. The Commission has thus previously focused on flow shares – *i.e.*, “a carrier’s percentage of the total number of customers or revenues gained by the various carriers in a certain time period, as opposed to its percentage of the total number of current customers or revenues.”⁵⁴ Wireless industry flow shares show a dramatic rise in competition, particularly from relatively new entrants (such as Leap and MetroPCS) who focus on offering pre-paid wireless services. For example, Morgan Stanley notes that prepaid plans accounted for the majority of wireless net subscriber adds for the last three consecutive quarters, with an aggregate 61 percent of net adds opting for a prepaid plan during this time.⁵⁵ Goldman Sachs projects that “prepaid subscriber additions will represent 33% of total industry net additions over the course of 2010.”⁵⁶

Any measure of concentration in the wireless industry – whether it is based on static market share or flow share – also fails to take due account of the degree to which wireline

⁵⁴ Memorandum Opinion and Order, *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent To Transfer Control*, 19 FCC Rcd 21522, ¶ 97 (2004); *see id.* ¶ 99.

⁵⁵ *See* Simon Flannery et al., Morgan Stanley, *2Q Trend Tracker: Attractive Valuations & Share Shifts Favor the Bells*, at 58, Exhibit 81 (Aug. 31, 2009).

⁵⁶ Jason Armstrong et al., Goldman Sachs, *Combining Telco/Cable*, at 21 (Sept. 8, 2009).

technologies provide competitive constraints on wireless carriers. Although more than 20 percent of U.S. households have “unplugged” their wireline phones, in the balance – nearly 80 percent of U.S. households⁵⁷ – consumers must still decide whether to use wireless or wired technology when making a call from their home. At the same time, customers in the U.S. are increasingly relying on wireless broadband for email, web surfing, social networking, e-commerce, and other functions that have historically been available only from wireline broadband services. The growing use of wireless broadband services is further enhanced by the availability of more than 65,000 Wi-Fi hotspots, from AT&T and others, across the country.⁵⁸ As these trends continue and accelerate – and as broadband services play an increasingly prominent role in the wireless industry – the availability of wireline broadband services must be recognized as a significant competitive constraint on wireless providers.

Entry. Marketplace evidence also demonstrates that new entry into retail wireless service is not merely feasible (which in itself would be competitively significant), but indeed likely and already occurring. Clearwire, cable companies, and other new providers have entered wireless services markets in recent years, and existing carriers continue to expand their footprints, service offerings, and reliability.⁵⁹ Even small entrants, moreover, can be successful. Virgin Mobile

⁵⁷ See Stephen J. Blumberg & Julian V. Luke, Div. of Health Interview Statistics, Nat’l Ctr. for Health Statistics, Centers for Disease Control and Prevention, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2008*, at 1 (May 6, 2009) (statistics as of December 2008).

⁵⁸ See JiWire, *Wi-Fi Hotspot Directory*, <http://www.jiwire.com/hotspot-hot-spot-directory-browse-by-country.htm> (67,718 Wi-Fi hotspots in the U.S. as of September 10, 2009).

⁵⁹ See Cox News Release, *Cox To Launch Next Generation Bundle with Wireless in 2009* (Oct. 27, 2008), <http://cox.mediaroom.com/index.php?s=43&item=19> (“As wireless communications enters the new generation, we are uniquely positioned to deliver the entertainment and communications services our customers want, whenever, however and wherever they want them.”); Clearwire News Release, *Clearwire Reports Third Quarter 2008 Results* (Nov. 10, 2008), <http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1224458&highlight=> (“We were very gratified when last week the FCC

went from no customers to being a major carrier with five million customers in just a few short years, and MetroPCS and Leap Wireless have been the fastest growing carriers in the nation.⁶⁰ MetroPCS, for example, reports that its customer base has grown more than 20 percent each quarter since 2007, and that it surged 36 percent in the past year; MetroPCS now serves more than 6.2 million customers.⁶¹

The prospects of these new entrants, moreover, are bright. For one thing, Leap and MetroPCS users incur more than twice the number of minutes of use as the average customer of the four national providers,⁶² a fact which confirms that they are “ideally positioned to benefit from rising wireless substitution in 2009.”⁶³ That substitution trend is likely to accelerate: Merrill Lynch “expect[s] the lower rungs of the national carrier post-paid contract base will

announced unanimous approval of our pending transaction to combine Clearwire with Sprint’s WiMAX business [W]e believe Clearwire will be set to unleash a new way to Internet by offering a true mobile broadband experience for our customers.”); Comcast Press Release, *Comcast Begins National Rollout of High-Speed Wireless Data Service* (June 29, 2009), <http://www.comcast.com/About/PressRelease/PressReleaseDetail.ashx?PRID=887> (in June 2009, Comcast began offering wireless data service using data cards over Clearwire’s 4G and Sprint’s 3G networks).

⁶⁰ See, e.g., Virgin Mobile News Release, *Virgin Mobile USA Reports \$98 Million in Adjusted EBITDA Excluding Transition and Restructuring Expenses for the First Six Months of 2009* (Aug. 10, 2009), http://virginmobileusa.marketwire.com/easyir/customrel.do?easyirid=13135DE328B72AB2&version=live&prid=526072&releasejsp=custom_124 (5 million customers as of the end of 2Q09); Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09, Voice and Data Divergence*, at 36 (June 25, 2009) (in the second quarter of 2009, “subscriber growth decelerated [year-over-year] and [quarter-over-quarter] at all four national carriers, but accelerated at Leap and MetroPCS, (with growth at 40% and 37% respectively”).

⁶¹ See Dianne Morrison, *Regional Carrier MetroPCS To Stay Independent*, moconews.net, (May 18, 2009), <http://www.mocoNews.net/entry/419-regional-carrier-metropcs-to-stay-independent>; MetroPCS Communications, Inc., Form 8-K, Exh. 99.1 (SEC filed Aug. 6, 2009) (stating MetroPCS has “approximately 6.3 million subscribers”).

⁶² See Simon Flannery et al., Morgan Stanley, *2Q Trend Tracker: Attractive Valuations & Share Shifts Favor the Bells*, at 53, Exhibit 72 (Aug. 31, 2009)

⁶³ Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09, Voice and Data Divergence*, at 36 (June 25, 2009).

migrate to more flexible pre-pay options in a belt-tightening environment, and we have already seen net adds shift sharply towards pre-pay in recent quarters.”⁶⁴ Prepaid providers including Leap and MetroPCS have thus “hit niches that are expanding the wireless market.”⁶⁵

Although these new entrants are thus poised to capitalize on the trends toward wireless substitution and prepaid plans, they are not limiting themselves to that market niche. Like the national providers, these carriers are investing heavily in next-generation networks that will permit them to offer robust broadband services. As explained above, Leap, which already operates a 3G network, expects to have its first operational LTE trial system in late 2009, and is considering launching a trial market in 2010.⁶⁶ U.S. Cellular has deployed a 3G network that will reach 70 percent of its customers by the end of 2009, and the company will conduct field trials of LTE technology in 2009 and 2010.⁶⁷ MetroPCS plans to deploy LTE technology in the second half of 2010.⁶⁸ These providers – and the other smaller carriers whose next generation

⁶⁴ *Id.*

⁶⁵ Jason Armstrong et al., Goldman Sachs, *Combining Telco/Cable*, at 21 (Sept. 8, 2009) (estimating that “prepaid subscriber additions will represent 33% of total industry net additions over the course of 2010”).

⁶⁶ See David Barden et al., Bank of America/Merrill Lynch, *2Q09 Wrap: Taking Optimism Out of the Model; PO to \$28*, at 6 (Aug. 7, 2009).

⁶⁷ U.S. Cellular Press Release, *U.S. Cellular Reports Second Quarter Results* (Aug. 6, 2009), <http://phx.corporate-ir.net/phoenix.zhtml?c=106793&p=irol-newsArticle&ID=1317829&highlight=>; U.S. Cellular and TDS Presentation at the Kaufman Bros. 12th Annual Investor Conference at 18 (Sept. 10, 2009), <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTUyNjh8Q2hpbGRJRD0tMXxUeXBIPtM=&t=1>.

⁶⁸ See, e.g., MetroPCS Press Release, *Unlimited Wireless Carrier MetroPCS Announces Vendors for 2010 4G LTE Launch* (Sept. 15, 2009), <http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1331809&highlight=> (MetroPCS president and CEO Roger Linquist: “As the Internet goes ‘mobile’ we are excited to be at the forefront of this wireless evolution with the building out of our 4G broadband data services. We anticipate to begin offering our 4G LTE services and a dual-mode LTE/CDMA smartphone in our major metropolitan markets in late 2010.”).

investment initiatives are detailed above⁶⁹ – are thus positioning themselves to compete at all levels of the industry, from low-cost prepaid plans to data-heavy broadband users and everywhere in between.

Pricing. The Commission has long recognized that “pricing levels and trends” are highly relevant to assessing the effectiveness of competition.⁷⁰ Here, those levels and trends underscore the intense competition that characterizes the industry. National, regional, and local carriers alike have lowered prices for wireless voice calls in the past year,⁷¹ and reports of wireless price wars are now almost a “weekly occurrence.”⁷² The *Wall Street Journal* recently reported on yet another new low price offering that has investors “concern[ed] over a stepped-up price war” among wireless carriers.⁷³ Carriers also have continued to develop innovative pay-as-you-go

⁶⁹ See *supra* pp. 17-18.

⁷⁰ *Thirteenth Report* ¶ 187; *Twelfth Report* ¶ 194; *Eleventh Report* ¶ 149; *Tenth Report* ¶ 153; *Ninth Report* ¶ 167.

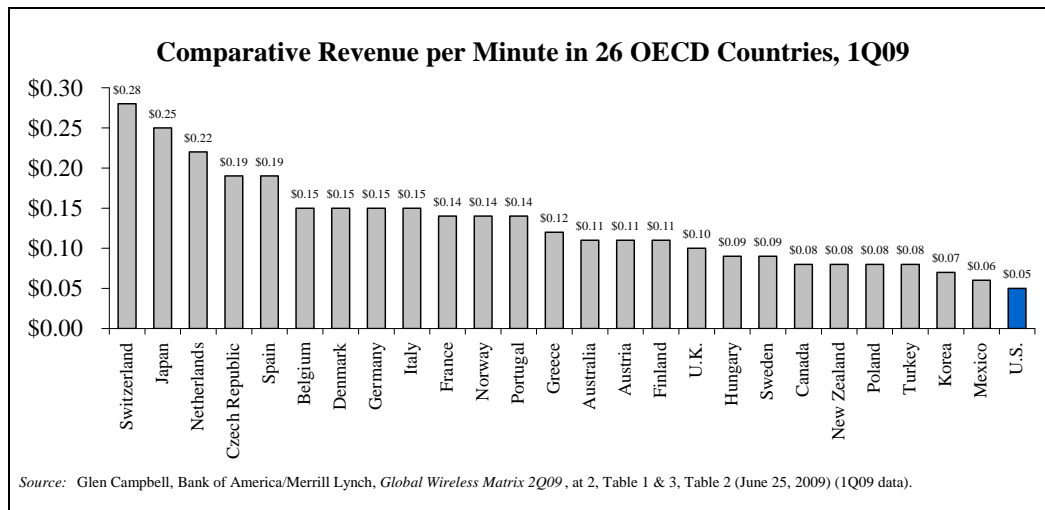
⁷¹ See, e.g., Roger Cheng, *Sprint Plan Ups Ante in Wireless Market*, Wall St. J. Online (Sept. 10, 2009) (“Over the past year, U.S. wireless carriers have gotten aggressive with flat-rate plans, with smaller players offering rates as low as \$40 a month for pre-paid phones.”), <http://online.wsj.com/article/SB125259114965199573.html>; Simon Flannery & Sean Ittel, Morgan Stanley, *Lowering Leap/PCS Estimates on Prepaid Pressures*, at 2, 4 (Sept. 11, 2009) (referring to “early August price cuts by MetroPCS and Leap”: these companies “recently responded to the increased competitive pressure each by lowering their pricing and we believe it is possible that their actions and a potential national rollout of [Tracfone] Straight Talk could prompt a competitive response.”); Timothy Horan et al., Oppenheimer, *2Q09 Recap: Mixed Quarter*, at 2 (Aug. 14, 2009) (citing “the ongoing price war in low-end wireless”).

⁷² Craig Moffett et al., Bernstein Research, *Quick Take – U.S. Telecommunications: Another LEAP into the Abyss (of Pre-Paid Pricing)*, at 1 (Aug. 4, 2009) (“In what has become an almost weekly occurrence, another shoe dropped in Wireless pricing yesterday.”); *id.* (citing a “‘stealth price war’ – one fought with rising subsidies rather than discounted service rates – in the high end post-paid market”).

⁷³ Roger Cheng, *New Low Wireless Rate Reignites Fear over Price War*, Wall St. J. (July 2, 2009), http://online.wsj.com/article/BT-CO-20090702-714020.html?mod=dist_smartbrief; see also R.W. Baird, *Wireless Carriers Circling the Ring*, Barrons (July 2, 2009), http://online.barrons.com/article/SB124648889886482875.html?mod=googlenews_barrons.

calling plans, which have become increasingly popular during the past year.⁷⁴ As the Commission explained in its last report, this “continued rollout of differentiated pricing plans” for wireless voice services “indicates a competitive marketplace.”⁷⁵

Unsurprisingly, the aggressive price competition in wireless means that U.S. consumers are paying less for more and better service. As the figure below demonstrates, the per-minute cost of calls for U.S. customers continues to be lower than those in other major industrial countries – the most recent data demonstrates that United States average revenue per minute is 62 percent lower than the average of the other 25 countries tracked by OECD.⁷⁶



To be sure, many wireless customers in the U.S. pay more, on a monthly basis, than do their counterparts in other nations, and some consumer groups have seized on this fact to claim

⁷⁴ See AT&T News Release, *AT&T To Introduce GoPhone Three-Dollar per Day Unlimited Calling Option May 11* (May 8, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26802>; *Cricket Unveils Unlimited Pay As You Go*, Prepaid Reviews (Oct. 3, 2008), <http://www.prepaidreviews.com/blog/cricket/cricket-unveils-unlimited-pay-as-you-go-35489/>.

⁷⁵ *Thirteenth Report* ¶ 111.

⁷⁶ See Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09, Voice and Data Divergence*, at 2, Table 1 & 3, Table 2 (June 25, 2009) (1Q09 data); see also *CTIA Study* at 3, 9; *Thirteenth Report*, ¶¶ 218-219 & Table 16.

that U.S. prices are higher than wireless prices elsewhere.⁷⁷ These claims confuse *prices*, which are lower in the U.S. than elsewhere, with *total spending*, which is often higher. Just as a customer that buys multiple gallons of milk from a supermarket will spend more than one who buys a single carton from the corner grocery, so too here: a wireless customer that uses more – whether in terms of calls, texting, or data – will likely spend more than one who uses less. But that says nothing about the relative *price* of the services. And, indeed, once consumption patterns are taken into account, it is clear that wireless prices in the U.S. are lower than they are elsewhere. Thus, for example, the Commission’s own data reveals that, in the year that commenters make the focus of their claims, U.S. wireless subscribers used their service as much as four times more than their counterparts in other OECD countries.⁷⁸ When the price comparison is adjusted, as it must be, for this higher usage, the data on which the consumer groups rely further confirm that the industry prices in the United States are in fact lower than in other industrialized countries and constrained by effective competition.

⁷⁷ See Comments of Consumer Federation of America, Consumers Union, Free Press, Media Access Project, New America Foundation, and Public Knowledge, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless Services*, WT Docket No. 09-66, at 8 (FCC filed June 15, 2009).

⁷⁸ See *Eleventh Report* ¶ 192 & Table 12 (“The United States widened its lead in mobile voice usage in 2005, with average MOUs estimated to be approximately 798 per month in the fourth quarter of 2005. This compares with an average across Western Europe of 142.6 MOUs, and estimates in individual countries that range from a high of 279 in Finland to a low of 81 in Germany. MOUs in comparable Asian-Pacific countries were generally higher than the Western European average, but still well below the U.S. figure, including Japan (147), Australia (178), South Korea (321.6), Hong Kong (395), and Singapore (313).”) (footnotes omitted). The Commission’s *Eleventh Report* contains the number of minutes for only a subset of the OECD countries on which CFA’s comparison of annual spending is based. According to the 2007 OECD report relied on by CFA, the number of minutes in the U.S. in 2005 was closer to *thirty* times higher than the average of the other OECD countries. See Organization for Economic Co-Operation and Development, *OECD Communications Outlook 2007*, at 120, Table 4.10 (2007).

A recent report of the OECD – purporting to show high prices for U.S. wireless services relative to other OECD nations – suffers from similar flaws.⁷⁹ The OECD’s findings are not based on actual usage, but instead rest on objectively unrealistic and hypothetical assumptions. For example, under the OECD methodology, a “medium use” consumer (which makes up the so-called medium use basket) makes 780 minutes of calls, sends 600 SMS messages, and sends 8 MMS messages, *per year*.⁸⁰ But, “[w]hile perhaps consistent with a few European countries,” this and other usage assumptions in the OECD report “are exceedingly low by United States . . . standards.”⁸¹ The average U.S. wireless consumer uses 760 minutes of voice calls and sends more than 400 text messages *per month*.⁸² Adjusting the totals to account for only outgoing calls (as does the OECD methodology), the OECD’s usage profile for a “medium use” consumer understates the actual consumption pattern of an average U.S. consumer by an order of six times (for calls) and four times (for text messages). This matters because “[m]obile prices are almost always a function of the quantity consumed,” and “sellers target their offerings to match the demand levels of their customers.”⁸³ By assuming unrealistically low usage patterns, the OECD

⁷⁹ See Organization for Economic Co-Operation and Development, *OECD Communications Outlook 2009*, at 275-76 & Figs. 7.9, 7.10 (Aug. 2009) (“*OECD Communications Outlook 2009*”) (purporting to show the United States has one of the highest prices per call in the low-use and medium-use baskets).

⁸⁰ See *id.* at 276 (describing the usage assumptions for the medium-use basket).

⁸¹ George S. Ford, Chief Economist, Phoenix Center for Advanced Legal and Economic Public Policy Studies, *Be Careful What You Ask For: A Comment on the OECD’s Mobile Price Metrics*, Phoenix Center Perspectives 09-03, at 1 (Sept. 16, 2009).

⁸² See *CTIA Responds to OECD Communications Outlook Report on Usage and Cost for Mobile Phone Calls*, FierceWireless (Aug. 12, 2009) (quoting August 11, 2009 CTIA Press Release), available at <http://www.fiercewireless.com/press-releases/ctia-responds-oecd-communications-outlook-report-usage-and-cost-mobile-phone-calls>.

⁸³ George S. Ford, Chief Economist, Phoenix Center for Advanced Legal and Economic Public Policy Studies, *Be Careful What You Ask For: A Comment on the OECD’s Mobile Price Metrics*, Phoenix Center Perspectives 09-03, at 2 (Sept. 16, 2009).

disproportionately weighs price plans that have met with little success in the marketplace, while ignoring the substantial cost savings realized by high-usage customers that make up the vast majority of U.S. wireless customers.⁸⁴

Even as to the unrealistic usage scenarios it employs, moreover, the OECD paints a highly distorted view of the marketplace. It ignores, for example, the smaller and regional carriers that “are [a] viable option for many American consumers and offer highly competitive offerings.”⁸⁵ It also fails to account for myriad factors that “could impact pricing in a particular market” – such as “the geographic scope of the network; prepaid plans; family plans; customer reward plans; handset subsidies; contract lengths; rollover minutes; the use of exchange rates or PPP adjustments; grandfathered plans; SMS and MMS messages; handset insurance; quality of customer service; quality of service; international prices; data plans; calling party pays versus receiving party pays; and mobile termination rates.”⁸⁶ Thus, even as to the disproportionately low usage patterns it purports to study, the OECD report disregards numerous and substantial factors affecting price.

The price competition that characterizes the U.S. wireless industry extends beyond the highly competitive voice plans available to consumers. Carriers continue to offer better value text messaging plans that allow customers to buy large blocks or even unlimited text messages for a single price.⁸⁷ Likewise, with respect to broadband data, carriers have introduced tiered

⁸⁴ See *id.* at 3; see also *id.* at 6 (“picking a few usage baskets does not permit meaningful comparisons of mobile prices across countries”; “[i]ncorporating the full distribution of usage . . . is required to compare countries”).

⁸⁵ *Id.* at 6.

⁸⁶ *Id.*

⁸⁷ See, e.g., David Barden et al., Bank of America/Merrill Lynch, *4Q08 Wireless Services & Handset Pricing Analysis*, at 6-7 (Jan. 20, 2009) (describing key pricing changes, including unlimited text messaging); Craig Moffett et al., Bernstein Research, *Quick Take – U.S.*

pricing for laptop cards and smartphone data plans, based on a range of monthly megabyte allowances.⁸⁸ Finally, carriers also continue to expand their bundled offerings. For example, AT&T recently introduced the “A-List” – a new feature that allows unlimited mobile calling to and from five domestic phone numbers at no additional cost.⁸⁹ Sprint recently introduced an “Any Mobile, Anytime” plan which allows calls to any mobile phone in the U.S., regardless of the carrier, in addition to unlimited text messaging and data services and 450 minutes for calls to landline phones.⁹⁰ Last fall, Leap introduced a “Cricket PAYGo” service that offers customers the ability to pay \$3 per day for unlimited voice, text, and web browsing,⁹¹ and AT&T and others responded in kind with their own such offerings.⁹²

Telecommunications: Another LEAP into the Abyss (of Pre-Paid Pricing), at 2, Exhibit 1 (Aug. 4, 2009) (comparing historical prices for unlimited voice, text, and Web pricing plans).

⁸⁸ See Jason Armstrong et al., Goldman Sachs, *2Q09 Wireless Survey: Phone Subsidies Rise, Prepaid Competition Up*, at 9, Exhibit 9 (June 29, 2009) (comparing laptop card pricing); Phil Cusick et al., Macquarie Research, *Verizon Launches Wireless Data Tiers*, at 2 (Sept. 9, 2009) (“Wireless carriers have traditionally offered tiered pricing for most services such as voice minutes and messaging, but thus far have only offered customers one rate for smartphone data plans – typically around US\$30 per month. Today, Verizon entered the tiered data plan with two new plans priced at US\$9.99 and US\$19.99 offering 25 and 75MB of usage, respectively.”).

⁸⁹ See AT&T News Release, *AT&T Customers Enjoy Unlimited Calling to Their A-List* (Sept. 9, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27093>.

⁹⁰ See Roger Cheng, *Sprint Plan Ups Ante in Wireless Market*, Wall St. J. Online (Sept. 10, 2009), <http://online.wsj.com/article/SB125259114965199573.html>.

⁹¹ See Leap Wireless Press Release, *Leap’s Cricket(R) Service Introduces Cricket PAYGo™ in Select Markets* (Oct. 2, 2008), <http://phx.corporate-ir.net/phoenix.zhtml?c=191722&p=irol-newsArticle&ID=1204795&highlight=paygo>; David Barden et al., Bank of America/Merrill Lynch, *2Q09 Wrap: Taking Optimism Out of the Model; PO to \$28*, at 7 (Aug. 7, 2009).

⁹² See AT&T News Release, *AT&T To Introduce GoPhone Three-Dollar per Day Unlimited Calling Option May 11* (May 8, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26802> (AT&T offers unlimited calling for \$3 per day, only on days you use your phone); Verizon Wireless News Release, *New Prepaid Calling Plans from Verizon Wireless Combine the Convenience of Prepaid with America’s Most Reliable Wireless Network* (Feb. 11, 2009), <http://news.vzw.com/news/2009/02/pr2009-02-11.html>

Output. As wireless prices have declined and service offerings have expanded, output has surged. As of the end of 2008, there were more than 270 million wireless subscribers in the United States, representing an increase of 15 million subscribers (nearly 6 percent) over the prior year.⁹³ Wireless penetration in the U.S. is now more than 87 percent, and more than 20 percent of U.S. consumers now live in households with only wireless service, as compared to just 8 percent of U.S. households in 2005.⁹⁴ In 2008, subscribers used more than 2.2 trillion wireless minutes, sent more than one trillion text messages (or more than 3.5 billion messages per day), and sent 15 billion MMS messages – all of which are marked increases from the year before.⁹⁵ Furthermore, mobile wireless broadband Internet access is the fastest growing segment of the U.S. broadband market: from June 2007 to June 2008 (the most recent year for which FCC data are available), wireless broadband additions far exceeded the additions from other modes of broadband (ADSL, cable, and other) combined.⁹⁶ Wireless consumers “have a number of

(Verizon Wireless offers unlimited calling for \$3.99 daily, charged only on the days calls are made and received; text messages are \$0.01 per message sent and received); Boost Mobile, *Daily Chat & Text*, <http://plans.boostmobile.com/chat.aspx> (Sprint’s Boost Mobile service offers unlimited text messaging for \$1 per day, including unlimited mobile-to-mobile, nights, and weekend calling; all other calls are \$0.10 per minute).

⁹³ See CTIA, *Background on CTIA’s Semi-Annual Wireless Industry Survey* at 2, http://files.ctia.org/pdf/CTIA_Survey_Year-End_2008_Graphics.pdf.

⁹⁴ See CTIA, *Wireless Quick Facts*, <http://www.ctia.org/media/index.cfm/AID/10323>; Stephen J. Blumberg & Julian V. Luke, Div. of Health Interview Statistics, Nat’l Ctr. for Health Statistics, Centers for Disease Control and Prevention, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2008*, at 5, Table 1 (May 6, 2009).

⁹⁵ See CTIA Press Release, *CTIA – The Wireless Association® Announces Semi-Annual Wireless Industry Survey Results* (Apr. 1, 2009), <http://www.ctia.org/media/press/body.cfm/prid/1811>; CTIA, *Overview of Key Regulatory Issues*, at 2 (Sept. 14, 2009), attached to Letter from Scott Bergmann, CTIA, to Marlene Dortch, FCC, GN Docket Nos. 09-51 et al. (Sept. 14, 2009).

⁹⁶ See Ind. Anal. & Tech. Div., Wireline Competition Bureau, FCC, *High-Speed Services for Internet Access: Status as of June 30, 2008*, at Table 1 (July 2009).

options for mobile Internet access,” including metered services and all-you-can-eat plans (either on a month-to-month basis or longer terms contracts), which enable them “to tailor their wireless service plans to their broadband needs.”⁹⁷

Non-Price Rivalry. The intense competition among wireless providers goes well beyond price, as carriers have differentiated themselves from their rivals with a range of service offerings. That is particularly evident with the roll-out of next generation networks. Carriers today offer wireless broadband Internet, email, video services, music services, turn-by-turn direction services, visual voicemail, and countless other data services. Customers can choose among myriad data plans, depending on which plan provides them the most value for their needs,⁹⁸ ranging from email-only plans to full-blown Internet access to service by the byte, megabyte, or gigabyte. These offerings are proving enormously popular: according to one estimate, “[t]he mobile Internet user population in the US is now roughly one-third the size of the wired Internet audience.”⁹⁹ In the case of AT&T, the number of 3G laptop data cards increased by nearly 50 percent over the past year to 1.4 million,¹⁰⁰ and more than 50 percent of postpaid customers subscribe to a data plan.¹⁰¹ Analysts estimate that wireless data traffic (including traffic on smartphones, mobile Internet devices, netbooks, and machine-to-machine)

⁹⁷ Comments of CTIA – The Wireless Association, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Docket No. 09-66, at 48 (FCC filed June 15, 2009) (“CTIA CMRS Comments”).

⁹⁸ See *Thirteenth Report* ¶ 119 (noting the “diversity of pricing options” available to wireless data customers).

⁹⁹ *Getting To Know the Mobile Population*, eMarketer (Aug. 25, 2009), <http://www.emarketer.com/Article.aspx?R=1007236>

¹⁰⁰ See AT&T, *Investor Briefing: 2nd Quarter 2009*, at 5 (July 23, 2009), available at http://www.att.com/Investor/Financial/Earning_Info/docs/2Q_09_IB_FINAL.pdf.

¹⁰¹ See AT&T, *AT&T Investor Update: 2Q09 Earnings Conference Call*, at 9 (July 23, 2009), available at http://www.att.com/Investor/Financial/Earning_Info/docs/2Q_09_slide_c.pdf.

will double every six months or so over the next five years, and expect monthly smartphone data traffic to grow by more than 120 percent in 2009.¹⁰² “[L]ikely by 2010, data traffic will surpass voice traffic on mobile networks.”¹⁰³

The nation’s largest wireless companies also continue to spend enormous sums on advertising.¹⁰⁴ And carriers also have made significant investments to enhance service quality and customer service, which have resulted in the highest consumer satisfaction ratings ever.¹⁰⁵ Thus, for example, the most recent report from J.D. Power and Associates shows that, in the second half of 2008, wireless carriers reduced the number of connectivity issues (*i.e.*, dropped calls), failed initial connections, and audio problems.¹⁰⁶ Consumer Reports’ most recent survey

¹⁰² Timothy Horan et al., Oppenheimer, *The Genie Is Out of the Bottle – Applications Separating from the Network*, at 4, Exhibit 2 (June 11, 2009) (projecting the growth of monthly smartphone data traffic from 3,244 terabytes in 2008 to 7,252 in 2009, 16,389 in 2010, and 32,628 in 2011). *See also* William Power & Steven Beckert, Baird, *Q1 Wireless Recap: Prepay Eclipses Postpay and Data ARPU Cracks Emerge?*, at 5 (May 11, 2009) (“While data revenue growth has decelerated, overall traffic volumes continue to soar, with messaging still doubling YOY and email and web browsing taking off with the adoption of smartphones. RIM reported that the data traffic crossing its network grew from 345 terabytes in 2008 to 1,092 terabytes in 2009, a YOY growth rate of 216.5%.”).

¹⁰³ Infonetics Research Press Release, *Mobile Backhaul Equipment Market Growing Fast, with No Letup in Sight* (May 27, 2009), <http://www.infonetics.com/pr/2009/1-mobile-backhaul-market-research-highlights.asp>.

¹⁰⁴ *See* Maureen Morrison, *Verizon Tops AT&T As Most-Advertised Brand*, Advertising Age (June 22, 2009), http://adage.com/datacenter/article?article_id=137407 (Verizon and AT&T spent \$2.2 billion and just below \$2 billion, respectively, in measured U.S. media spending in 2008, according to TNS Media Intelligence, “command[ing] the top two spots in Ad Age’s ranking of the Top 100 megabrands for 2008”).

¹⁰⁵ *See, e.g.*, AT&T News Release, *AT&T Wins Billing & OSS World Excellence Award for Customer Care* (Apr. 15, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26724> (“AT&T BusinessDirect® customer Web portal has been recognized with the Billing & OSS World 2009 Excellence Awards for Best Customer Care Solution. The annual awards recognize the leaders – vendors, service providers and integrators – in the development and deployment of billing and operations support systems (OSS) technologies and solutions.”).

likewise shows a substantial increase in the percentage of customers who are completely or very satisfied with their wireless service, and it attributes that increase to fewer dropped calls and higher-quality connections.¹⁰⁷ These results reflect that carriers such as AT&T continue to pour money into their networks to maintain a high level of customer service in the face of exploding bandwidth consumption.

The Commission's own complaint data further confirm the improvements in service quality realized in the industry. The Commission tracks wireless complaints in five categories: "Carrier Marketing & Advertising," "Contract – Early Termination," "Service Related Issues," "Billing & Rates," and "Telephone Consumer Protection Act" ("TCPA").¹⁰⁸ "TCPA" complaints are complaints "regarding compliance with the TCPA requirements applicable to wireless telecommunications" – in other words, complaints about failure to comply with the Commission's rules prohibiting certain kinds of calls to wireless numbers.¹⁰⁹ Although the first four of the Commission's complaint categories may plausibly be said to involve carrier-related complaints, TCPA-related complaints plainly are not: wireless carriers obviously cannot police who calls their customers and why. And, critically, the overwhelming majority of wireless complaints the Commission receives are in fact TCPA-related. In the most recent quarter for

¹⁰⁶ See J.D. Power and Associates Press Release, *J.D. Power and Associates Reports: Overall, Wireless Carriers Reduce Dropped Calls, Failed Connections and Static, Driving an Improvement in Call Quality Performance* (Aug. 27, 2009), <http://www.jdpower.com/corporate/news/releases/pressrelease.aspx?ID=2009155>.

¹⁰⁷ See *Best of Cell Phone Service*, Consumer Reports (Jan. 2009), <http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/phones/cell-phone-service-providers/cell-phone-service/overview/cell-phone-service-ov.htm>.

¹⁰⁸ See, e.g., FCC, *Report on Informal Consumer Inquiries and Complaints – 1st Quarter Calendar Year 2009* at 9 (Sept. 8, 2009) ("*FCC 1Q09 Consumer Complaint Report*"), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293273A1.pdf.

¹⁰⁹ See generally Report and Order, *Rules and Regulations Implementing the Telephone Consumer Protection Act of 1991*, 18 FCC Rcd 14014 (2003).

which data are available (the first quarter of 2009), the Commission reported a total of only 4,299 non-TCPA wireless complaints.¹¹⁰ Measured against the 270.3 million wireless subscribers in the U.S.,¹¹¹ that number is astonishingly low. It translates to a quarterly consumer complaint rate of approximately 0.0015 percent. Put more simply, this means that, over the course of three months, only one in 75,000 U.S. wireless subscribers is sufficiently dissatisfied with some aspect – indeed, any aspect – of his wireless service to complain to the Commission. And, while the Commission press release accompanying the most recent data asserts that “[w]ireless complaints increased” in the most recent quarter, the more relevant category – *non-TCPA-related* complaints – have in fact declined: the 4,299 non-TCPA-related wireless complaints reflected in the Commission’s latest report represents a 30-percent reduction over the first quarter of 2008.¹¹² Thus, even as wireless subscribership and usage have surged, consumer complaints have decreased, further underscoring that carriers are competing – and competing successfully – on service quality.

Consumer Switching. As the Commission has explained, “if enough consumers have the ability and propensity to switch service providers in response to an increase in price or other harmful conduct, then the provider will have an incentive to compete on price and non-price factors.”¹¹³

¹¹⁰ See *FCC 1Q09 Consumer Complaint Report* at 9.

¹¹¹ See CTIA, *Wireless Quick Facts*, <http://www.ctia.org/advocacy/research/index.cfm/AID/10323>.

¹¹² See FCC, *Report on Informal Consumer Inquiries and Complaints – 1st Quarter Calendar Year 2008* at 4 (Jan. 8, 2009), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-287778A1.pdf (reporting 6,125 carrier-related (*i.e.*, non-TCPA-related wireless) complaints in 1Q08).

¹¹³ *Thirteenth Report* ¶ 177.

Here, there can be no question about consumers' "ability and propensity to switch service providers." For the national carriers, churn rates range from 1.2 percent to 4 percent per month, which means that between 15 percent and 48 percent of customers switch carriers or cancel service each year.¹¹⁴ This high customer turnover directly affects profitability and accordingly spurs carriers to offer competitive prices and services in order to retain customers.

This customer turnover also reflects the ease with which customers can switch providers. Even before the Commission adopted wireless number portability, industry churn rates were high.¹¹⁵ With the implementation of number portability, a potential barrier to switching providers – *i.e.*, the need to change telephone numbers – was eliminated.¹¹⁶ To be sure, customers who choose to purchase a subsidized handset typically must sign a one- or two-year contract. But, as discussed further below,¹¹⁷ consumers derive great benefits from those subsidies. Indeed, they are undoubtedly a major reason why wireless subscribership in this country has grown so rapidly and is accessible to virtually all Americans. Beyond that, a one- or two-year commitment with an early termination fee ("ETF") is hardly anticompetitive in effect. There are many robustly competitive markets in which comparable or even longer commitments are commonplace – *e.g.*, an automobile lease typically runs three years or more, newspaper or magazine subscriptions often require a multi-year commitment to obtain the lowest rate, and gym

¹¹⁴ See *id.* ¶ 181. Similarly, a recent survey states that "9 percent of AT&T customers said they would switch carriers in the next six months, compared with 11 percent of Verizon customers." Phil Goldstein, *Report: AT&T Most Likely To Pick Up Switching Subscribers*, Fierce Wireless (May 28, 2009), <http://www.fiercewireless.com/story/report-t-most-likely-pick-switching-subscribers/2009-05-28>.

¹¹⁵ See *Eighth Report* ¶ 68 ("Most carriers report churn rates between 1.5 percent and 3 percent per month. At current rates, more than 30 percent of subscribers change service providers each year.") (footnote omitted); *Ninth Report* ¶ 4 ("the advent of [local number portability] does not appear to have resulted in an increase in churn").

¹¹⁶ See *Thirteenth Report* ¶¶ 182-184.

¹¹⁷ See *infra* pp. 59-61.

memberships and apartment rentals often require a six-month or one-year commitment before the consumer is permitted to purchase on a month-to-month basis. And, in all events, not only are wireless customers free to purchase an unsubsidized phone without a term plan but, for most national carriers, those fees are less than \$200 and are now reduced on a pro rata basis for each month the customer stays with the carrier.¹¹⁸

Customer switching is also facilitated by ample access to information about the availability and quality of competitive alternatives.¹¹⁹ As the Commission has recognized, carriers have invested heavily in informing customers about the features, performance, pricing, and quality of their networks and services, and about how these characteristics compare with those of other networks.¹²⁰ In this regard, AT&T and many other carriers are signatories to the CTIA Consumer Code for Wireless Service, which, among many other protections, guarantees customers the information they need to make informed choices.¹²¹ Third parties likewise have made businesses out of collecting and providing information about alternative providers to customers, and that information is widely available on the web.¹²²

¹¹⁸ *Accord Thirteenth Report* ¶¶ 185-186 (noting the increasing prevalence of pro-rated early termination fees).

¹¹⁹ *See id.* ¶¶ 178-186.

¹²⁰ *See id.* ¶ 179 (finding that the wireless industry has responded to consumers' desire for information "by launching various initiatives designed to educate consumers and help them make informed choices when purchasing wireless services").

¹²¹ *See CTIA, Consumer Code Participants*, http://www.ctia.org/consumer_info/service/index.cfm/AID/10623.

¹²² *See supra* p. 12; *accord Thirteenth Report* ¶ 178 (finding that the sources of third-party information available to consumers include publications, trade associations, marketing and consulting firms, and numerous web sites).

2. Device Market Segments Are Highly Competitive

The Commission seeks comment on how “wireless devices . . . should be examined and evaluated.” *NOI* ¶ 16. Devices should be examined and evaluated as an important front in the competitive battle among network providers. Competition in the industry focuses not only on price, bucket size, service offerings, and dropped calls, but also on the devices carriers make available to meet consumers’ varied needs. These devices have evolved – and continue to evolve – at a breakneck pace. It was not so long ago that cell phones were single-use devices the size of a brick. Now, consumers can choose from among a wide range of smartphones, feature phones, e-readers, and netbooks, with more options being released seemingly by the day. And carriers are increasingly exploring machine-to-machine wireless applications – in the health and energy fields, to name just two – that will require a vast expansion in the Commission’s understanding of the term “wireless device.” The device segment of the wireless ecosystem, in short, highlights both the vibrant competition and remarkable innovation that characterize the industry.

Handsets. The history of wireless handsets in the U.S. is a history of short-lived successes. In 1989, *Fortune* magazine, reporting on the 12-ounce, \$2,995 Motorola MicroTAC flip phone, stated that “[p]ortable phones won’t get a lot smaller than this one.”¹²³ In 1996, Motorola released the StarTAC mobile phone, which was one-fourth the size of the MicroTAC, which could fit in a customer’s shirt pocket, and which promised to “revolutionize the cellular industry.”¹²⁴ That same year, Nokia launched its own so-called revolution in the form of the Nokia 9000 Communicator, which combined phone, fax, address-book and e-mail functionality,

¹²³ Robert Hahn and Hal J. Singer, *Why the iPhone Won’t Last Forever and What the Government Should Do to Promote Its Successor*, Working Paper, at 4, Georgetown Center for Business and Public Policy (Sept. 2009) (“*Handset Exclusivity Paper*”) (quoting Brian O’Reilly, *Gadgets for Executives*, *Fortune* (Sept. 11, 1989)).

¹²⁴ *Id.* (quoting *Motorola Puts Communications in the Palm of Your Hand*, PR Newswire (Jan. 3, 1996)).

signaling “‘the birth of the real information age.’”¹²⁵ And in 2004, Motorola revolutionized the industry (again) with its “iconic, image-leading” Razr, which packaged simplicity with small size, which promised consumers that “once you picked up the Razr and used it, you never wanted another phone,” and which exceeded its *lifetime* sales projections in just three months.¹²⁶

The latest “game-changer” was the iPhone,¹²⁷ which was first introduced in June 2007 and which, according to industry analysts, overtook the Razr as the top-selling phone in the U.S. in the third quarter of 2008.¹²⁸ But, as with all those that came before, the iPhone’s rein on top was fleeting: In the first quarter of 2009, RIM’s Blackberry Curve overtook the iPhone to “become the best-selling consumer smartphone in the United States.”¹²⁹ The most recent version of the iPhone then upped the ante – and may have retaken the lead¹³⁰ – but if there is one thing that is certain, it is that a new device, whether made by Apple or another manufacturer, will displace the current iPhone as the hottest, most innovative smartphone on the market.

¹²⁵ *Id.* at 6 (quoting *Nokia Pioneers New Product Category with the World’s First All-in-One Communicator*, Bus. Wire (Mar. 13, 1996)).

¹²⁶ *Id.* (internal quotation marks omitted).

¹²⁷ See, e.g., Simon Flannery & Daniel Gaviria, Morgan Stanley, *AT&T, Inc.: Defensive Qualities Evident*, at 3 (Oct. 23, 2008).

¹²⁸ See Joshua Topolsky, *iPhone 3G Overtakes the RAZR As Best-Selling Domestic Handset*, Engadget (Nov. 10, 2008), <http://www.engadget.com/2008/1/10/iphone-3g-overtakes-the-razr-as-best-selling-domestic-handset/>.

¹²⁹ *Handset Exclusivity Paper* at 1 (citing NPD Group Press Release, *RIM Unseats Apple in the NPD Group’s Latest Smartphone Ranking* (May 4, 2009), http://www.npd.com/press/releases/press_090504.html).

¹³⁰ Although third quarter 2009 market share data are not yet available, reports suggest that sales of the iPhone 3GS have been very strong. See Apple Press Release, *Apple Sells over One Million iPhone 3GS Models* (June 22, 2009), <http://www.apple.com/pr/library/2009/06/22iphone.html>; Timothy Horan et al., Oppenheimer, *2Q09 Preview Communications Services*, at 2 (July 10, 2009) (Analysts noted that “[d]emand for the new iPhone [3GS] is so impressive that 46% of Apple stores are currently reporting unavailability of units (~80% unavailability of the 16GB model).”).

Indeed, far from closing the book on innovation and competition in devices, the iPhone opened a new chapter. Barely a day goes by without another announcement of a new device with new features promising consumers a new and unrivaled wireless experience. Thus, for example, Samsung offers the Instinct,¹³¹ Blackberry has the Storm,¹³² Palm offers the Palm Pre,¹³³ and T-Mobile has teamed with Google to release the Android-based T-Mobile G1 with Google.¹³⁴ The iPhone 3G was released in 2008 and the 3G S in 2009,¹³⁵ and BlackBerry, Palm, HTC, Samsung, Motorola, LG, and others continue to roll out handset after handset with the

¹³¹ See Sprint News Release, *Award-Winning Samsung Instinct™ Available Exclusively from Sprint on June 20 for Just \$129.99* (June 18, 2008), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1167445&highlight=. In April 2009, Samsung updated its Instinct handset “with access to core Java [application programming interfaces], including messaging, multimedia and Bluetooth, which allow developers to take advantage of the phone’s features.” Sprint News Release, *Samsung Instinct s30, Exclusively from Sprint, Adds Attractive Styling, Instant Messaging, Improved Web Experience and Enhanced Open Development Capabilities to Popular Instinct* (Mar. 31, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1271892&highlight=.

¹³² See Verizon Wireless News Release, *BlackBerry Takes the World by Storm with Verizon Wireless and Vodafone* (Oct. 8, 2008), <http://news.vzw.com/news/2008/10/pr2008-10-07g.html>. Verizon Wireless began selling the BlackBerry Storm in November 2008. See Verizon Wireless News Release, *Customers Across the Country Line Up As BlackBerry Storm Blows into Verizon Wireless Communications Stores* (Nov. 21, 2008), <http://news.vzw.com/news/2008/11/pr2008-11-21b.html>.

¹³³ See Sprint News Release, *Sprint To Offer Palm Pre Nationwide on June 6* (May 19, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1289761&highlight=; Sprint News Release, *Sprint Sets Sales Record with Weekend Debut of Palm Pre* (June 8, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1297438&highlight=; *Best of 2009 CES*, Laptop Mag. (Jan. 10, 2009), <http://www.laptopmag.com/review/accessories/bestofces.aspx?pid=12>.

¹³⁴ See T-Mobile Press Release, *T-Mobile Launches the Highly Anticipated T-Mobile G1* (Oct. 22, 2008), http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20081022&title=T-Mobile%20Launches%20the%20Highly%20Anticipated%20T-Mobile%20G1.

¹³⁵ See AT&T News Release, *iPhone 3G S Available at AT&T Tomorrow* (June 18, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26868>.

latest cutting-edge features.¹³⁶ All told, competing providers have developed and released “over 25 similarly modeled smartphones in an attempt to match iPhone’s technology, usability and style.”¹³⁷

Nor is it the case that device manufacturers are content merely to attempt to match the iPhone’s capabilities. The Palm Pre, for example, is equipped with physical features that are not available on the iPhone: a removable battery; a keyboard, which many users prefer; and a flash for the camera. In addition, the operating system on the Palm Pre allows for multitasking, whereas the iPhone runs one application at a time.¹³⁸ For its part, the Nokia 5800 XpressMusic,

¹³⁶ See, e.g., HTC News Release, *The Innovation and Openness of a True Mobile Internet Experience Coming Soon to America’s Most Dependable 3G Network from Sprint on HTC Hero with Google* (Sept. 3, 2009), <http://www.htc.com/us/press.aspx?id=109704&lang=1033> (the HTC Hero, based on the Android OS, will be available on the Sprint network beginning in October 2009); Motorola Press Release, *T-Mobile USA Unveils the Motorola CLIQ with MOTOBLUR* (Sept. 10, 2009), <http://mediacenter.motorola.com/content/detail.aspx?ReleaseID=11805&NewsAreaID=2> (the Android-based Motorola CLIQ, which “will be available exclusively in the U.S. from T-Mobile later this fall,” features the MOTOBLUR solution to “manage[] and integrate[] communications – from work e-mail to social networking activity,” updating and syncing contacts, posts, messages, and photos); Palm Press Release, *Thin Palm Pixi Phone Puts Fast, Intuitive Communication at Fingertips* (Sept. 9, 2009), <http://investor.palm.com/releasedetail.cfm?ReleaseID=407921> (the Palm Pixi phone, featuring “the instinctively useable Palm webOS platform, strikingly thin design, a visible full keyboard and fashionable personalization options,” will be “available exclusively from Sprint in time for the holidays”); Tal Liani et al., Bank of America/Merrill Lynch, *Motorola Inc.: New Chapter Begins; Raise PO to \$10.60*, at 6, Chart 1 (Sept. 15, 2009) (comparing Android smartphones from Motorola, HTC, and Samsung).

¹³⁷ See Phil Cusick et al., Macquarie Research, *Wireless Emerging Devices: Smartphones To Drive the Data Rescue*, at 2-3 (Mar. 30, 2009) (Apple “reinvented the smartphone with the introduction of the iPhone, which became the fastest-selling mobile device in history. The iPhone has raised the bar for all handset OEMs with a mobile Internet browsing experience for which people have demonstrated a willingness to pay. . . . Since then, other vendors have released over 25 similarly modeled smartphones in an attempt to match iPhone’s technology, usability and style.”).

¹³⁸ See Rob Enderle, Principal Analyst, Enderle Group, *The Palm Pre: The Best Smartphone Yet. Period*, TG Daily (June 4, 2009), <http://www.tgdaily.com/content/view/42722/145/>; David Colker & Michelle Maltais,

also known as the “Tube,” is optimized for music and video, and is considered by some to be preferable to the iPhone because “[t]he screen is bigger, the video quality is better, . . . the high definition screen will make things clearly noticeable,” and “[i]t’s lighter, faster and far cheaper.”¹³⁹ As Google’s senior director for mobile platforms puts it, the objective is not to match the iPhone, but to beat it: “the domestic [U.S.] market is so competitive that carriers and handset makers want to create highly distinctive versions of the Android phone *to give themselves an edge*.”¹⁴⁰

Indeed, the wide range of innovative, highly rated smartphones available in the marketplace ensures that all consumers have access to innovative devices, no matter which carrier they choose. Each of the national carriers boasts a full lineup of smartphones,¹⁴¹ as do carriers such as U.S. Cellular, Leap Wireless, MetroPCS, and Cellular South.¹⁴² The smartphone revolution has thus resulted in consumer choice for *all* customers of *all* carriers.

Technology Comparison: Will iPhone’s Bell Get Rung by Pre?, L.A. Times (June 6, 2009), <http://articles.latimes.com/2009/jun/06/business/fi-palm-pre-shootout6>.

¹³⁹ Zack Whittaker, *Nokia 5800: The Quintessential iPhone Killer*, ZDNet (Feb. 18, 2009), <http://blogs.zdnet.com/igeneration/?p=1044>.

¹⁴⁰ Matt Richtel, *Google: Expect 18 Android Phones by Year’s End*, N.Y. Times (May 27, 2009) (emphasis added), <http://bits.blogs.nytimes.com/2009/05/27/google-expect-18-android-phones-by-years-end>.

¹⁴¹ In addition to the iPhone and assorted BlackBerries, AT&T offers smartphones such as the HTC FUZE, LG INCITE, Nokia Surge, Pantech Matrix Pro, and Samsung Jack. AT&T, *PDAs and Smartphones – Data Only*, <http://www.wireless.att.com/cell-phone-service/cell-phones/pda-phones-smartphones.jsp>. Verizon Wireless’s smartphone offering includes the HTC Ozone, Motorola MOTO Q, Samsung Omnia, and the Verizon Wireless XV6900. Verizon Wireless, *Select a Phone or Device: PDA & Smartphones*, <http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewPhoneOverviewByDevice&deviceType=PDA/SmartPhones>. Sprint offers the HTC Snap, Motorola i920, Palm Centro, and Samsung ACE. Sprint, *Shop: Phones*, <http://www.sprint.com>. And T-Mobile offers the Motorola CLIQ, Samsung Behold, T-Mobile G1, and T-Mobile myTouch. T-Mobile, *Phones*, http://www.t-mobile.com/shop/phones/default.aspx?WT.z_HP=shop_phones.

¹⁴² U.S. Cellular’s smartphone offering includes the HTC Touch, HTC Touch Pro, LG Bliss, as well as the BlackBerry Curve and BlackBerry Pearl. U.S. Cellular, *Phones*,

Although smartphones are increasingly popular, moreover, conventional phones continue to represent the bulk – approximately 58 percent – of new cellphone activations,¹⁴³ and here too customer choice is overwhelming. As noted at the outset, wireless consumers can choose from a total of more than 600 devices, from 30 different manufacturers. Indeed, even among conventional handsets, consumer choice is the norm. Consumers can choose simple devices with large keypads that are tailored to address the preferences and needs of the young and/or elderly, ultrasmall devices that can fit in a change purse, devices with “Qwerty” keypads and multiple screens, devices with built-in cameras and music players, and devices that enable calling and texting but little else.¹⁴⁴

http://www.uscc.com/uscellular/SilverStream/Pages/b_showphone.html?zip=60411&mkt=608830&tm=1&prepaid=N&sort=0&filter=Y&smartphone=Y (zip code 60411). MetroPCS’s smartphone offering includes the Samsung Finesse, Samsung Messenger II, and the Samsung r450. MetroPCS, *Phones*, <http://www.metropcs.com/shop/phonelist.aspx> (zip code 49001). Leap Wireless offers the Cricket TXTM8, Motorola Hint QA30, and Samsung Messenger II. Cricket Wireless (Leap), *Phones*, <http://www.mycricket.com/cricketphones>. And Cellular South’s smartphone offering includes the HTC Touch Diamond, LG Spyder II, Motorola Hint QA30, and Samsung Finesse. Cellular South, *Phones*, https://www.cellularsouth.com/cscommerce/products/phones/category_phones_list.jsp?id=cat30003&homeFilter=pda/smartphone.

¹⁴³ See Simon Flannery et al., Morgan Stanley, *Survey: iPhone and Blackberry Ahead in July Smart-phone Adoption; Palm Fades*, at 2, Exhibit 1 (Aug. 21, 2009).

¹⁴⁴ To take just two examples, Firefly Mobile offers “[t]he mobile phone for mobile kids” – simple, colorful handsets that allow children to call or text their parents. Firefly Mobile, <http://www.fireflymobile.com/>. The Jitterbug phone “was created for people who prefer a simple, easy to use cell phone”; its handsets are “easy to use, with large back-lit buttons, a bright screen and large text.” Jitterbug, *About Us*, <http://www.jitterbug.com/AboutUs/>; Consumer Bob, *Simple Cell Phone Dials Up Success*, NBC San Diego (July 29, 2009), <http://www.nbcsandiego.com/around-town/real-estate/Simple-Cell-Phone-Dials-Success.html>; see also Katherine Boehret, *App Aims To Up Social Status of Some Basic Cellphones*, All Things Digital (Mar. 10, 2009), <http://solution.allthingsd.com/20090310/app-aims-to-up-social-status-of-some-basic-cellphones/> (“Believe it or not, there are people who want nothing to do with smart phones like BlackBerrys and iPhones – they just want a basic cellphone for making and receiving calls.”).

With carriers and manufacturers pouring enormous resources into devices, it should come as no surprise that no single device or manufacturer has been able to maintain a durable market share. On the contrary, device market shares have fluctuated wildly. Motorola, which once “commanded 20%+ of the global smartphone market,” has approximately six percent today.¹⁴⁵ At the end of 2007, Motorola, Samsung, and LG together accounted for two-thirds of new U.S. device sales;¹⁴⁶ by July 2009, that figure had dropped to 48 percent.¹⁴⁷ Despite the popularity of the iPhone, analysts estimate that Apple has only a 13 percent share of all new handset device activations.¹⁴⁸ Moreover, as noted, even among smartphones, industry data show that the Blackberry Curve outsold the iPhone in the first quarter of 2009, and other leading manufacturers (including LG, Samsung, and HTC) together account for 35 percent of smartphone activations.¹⁴⁹

There is, in short, vigorous competition among providers and device manufacturers to provide customers the best, and the best value, wireless handsets. That competition manifests itself every day in the deployment of cutting-edge technology, aggressive pricing, and wide

¹⁴⁵ Tal Liani et al., Bank of America/Merrill Lynch, *Motorola Inc.: New Chapter Begins; Raise PO to \$10.60*, at 7 (Sept. 15, 2009).

¹⁴⁶ See Simon Flannery et al., Morgan Stanley, *Wireless Survey Suggests Verizon Gains As Sprint Fades*, at 9, Exhibit 11 (Apr. 8, 2008). See also David Barden et al., Bank of America, *Wireless Services Pricing Analysis*, at 10-11 (Sept. 8, 2006) (comparing 3Q06 vs. 1Q06 changes in “shelf space share” by manufacturer, with Samsung and Motorola in the lead with 26 percent and 22 percent, respectively, of all models sold by wireless providers).

¹⁴⁷ See Simon Flannery et al., Morgan Stanley, *Survey: iPhone and Blackberry Ahead in July Smartphone Adoption; Palm Fades*, at 3, Exhibit 2 (Aug. 21, 2009).

¹⁴⁸ See *id.*, at 2, Exhibit 1 & 3, Exhibit 2 (smartphones account for 42 percent of handset activations; the iPhone accounts for 30 percent of those smartphone activations).

¹⁴⁹ See *id.*, at 1 (iPhone and BlackBerry each accounted for 30 percent of smartphone activations in July 2009); *Handset Exclusivity Paper* at 1 (citing NPD Group Press Release, *RIM Unseats Apple in the NPD Group’s Latest Smartphone Ranking* (May 4, 2009), http://www.npd.com/press/releases/press_090504.html).

variation in service offerings – all of which ensures that consumers have a wide range of options when choosing a wireless handset.

Specialized Devices. Any examination of the wireless “ecosystem” must take into account one of its fastest growing segments: specialized service offerings that use wireless service coupled with narrow-purpose devices. The Amazon “Kindle” – a wireless device that permits customers to download and read books – is perhaps the most well known example. Customers pay a one-time fee for the device, as well as a per-title fee for the content. The wireless service (which is provided by Sprint) is bundled with the device and associated content. Customers do not pay an additional fee for wireless connectivity, but they do agree to adhere to terms of use that restrict them to using the device (and its associated wireless service) only for its intended purpose and for no other purpose.¹⁵⁰

The Kindle has proven exceptionally popular. Analysts estimate that Sprint serves 885,000 to one million Kindle users,¹⁵¹ with approximately one million more expected by the end of 2010.¹⁵² Following the successful launch of the Kindle in November 2007, in February 2009 Amazon released the Kindle 2, and in May 2009 Amazon released the Kindle DX, which

¹⁵⁰ See Andrew Berg, *Reading the Future of the Digital Book*, Wireless Week (May 31, 2009), <http://www.wirelessweek.com/Articles/2009/06/Reading-the-Future-of-the-Digital-Book/>; Amazon, *Amazon Kindle: License Agreement and Terms of Use* (last updated Feb. 9, 2009), http://www.amazon.com/gp/help/customer/display.html/ref=kin2w_ddp?nodeId=200144530&# wireless (“You agree you will use the wireless connectivity provided by Amazon only in connection with Services Amazon provides for the Device. You may not use the wireless connectivity for any other purpose.”).

¹⁵¹ See Jim Friedland & Kevin Kopelman, Cowen and Company, *Quick Take: Sony Announces E-Reader with Wireless Connectivity*, at 2 (Aug. 26, 2009) (estimating 885,000 Kindle users); Craig Moffett et al., BernsteinResearch, *Sprint (S): Pre-lude to a Turnaround?*, at 24, Exhibit 27 (June 23, 2009) (estimating one million users as of 1Q09).

¹⁵² Jim Friedland & Kevin Kopelman, Cowen and Company, *Quick Take: Sony Announces E-Reader with Wireless Connectivity*, at 2 (Aug. 26, 2009).

features a larger screen and the ability to read documents in the Adobe PDF format.¹⁵³

Amazon's success is, in turn, provoking a competitive response. Sony is scheduled to release a competing next-generation e-book reader (the Sony Reader Daily Edition) in December 2009 which will offer comparable functionality (and which will access content through AT&T's 3G wireless network).¹⁵⁴ In October 2009, Best Buy will begin selling the IREX Technologies touch-screen e-reader, which features content downloads delivered over Verizon Wireless's network, as well as the ability to download content while traveling abroad.¹⁵⁵ Barnes & Noble is expected to release a Plastic Logic eReader with wireless downloads over AT&T's network in early 2010,¹⁵⁶ and the Hearst Corporation is said to be developing a wireless e-reader for periodicals.¹⁵⁷ All of these devices – though limited in what customers can do with the wireless service that comes along with them – promise still more customer choice and, therefore, enhanced consumer welfare.

¹⁵³ See Amazon News Release, *Introducing Amazon Kindle* (Nov. 19, 2007), <http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1079388&highlight=>; Amazon News Release, *Introducing Amazon Kindle 2* (Feb. 9, 2009), <http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1254544&highlight=>; Amazon News Release, *Introducing Kindle DX – Amazon's Large Screen Addition to the Kindle Family of Wireless Reading Devices* (May 6, 2009), <http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1285140&highlight=>.

¹⁵⁴ See Sony Electronics Press Release, *Extra, Extra: Sony's Daily Edition Rounds Out New Line of Digital Readers* (Aug. 25, 2009), http://news.sel.sony.com/en/press_room/consumer/computer_peripheral/e_book/release/41492.html.

¹⁵⁵ See Verizon Wireless News Release, *IREX Technologies Turns the Page on eReaders with New 8.1-inch Consumer Device* (Sept. 23, 2009), <http://news.vzw.com/news/2009/09/pr2009-09-23b.html>.

¹⁵⁶ Jim Friedland & Kevin Kopelman, Cowen and Company, *Quick Take: Sony Announces E-Reader with Wireless Connectivity*, at 2 (Aug. 26, 2009); AT&T News Release, *Plastic Logic eReader Will Wirelessly Connect Using AT&T 3G Network* (July 22, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27157>.

¹⁵⁷ See Michael V. Copeland, *Hearst To Launch a Wireless E-Reader*, *Fortune* (Feb. 27, 2009), http://money.cnn.com/2009/02/27/technology/copeland_hearst.fortune/.

Of course, e-readers are by no means the only type of specialized devices that will be made available to consumers if the Commission's recently announced net neutrality initiative does not shut the door to such innovation. One can imagine a whole range of devices tailored to consumers with various particularized needs or interests. Those devices might offer just a single functionality or some larger, but still limited, subset of the full range of applications available in the marketplace. Certainly, any net neutrality requirement the Commission adopts should reflect and respect the diversity of consumer tastes and preferences and leave room in the marketplace for devices that reflect those different tastes and preferences. If consumers prefer a device that is optimized for certain limited applications that are of particular interest to them, they should have that choice, just as they should have the choice of a device that is open to any and every available application.

Netbooks – small, light computing devices that are optimized for accessing web-based applications – are another increasingly popular device that rely on wireless connectivity (in particular, broadband connectivity). Laptop manufacturers such as Dell and retailers such as RadioShack and Costco began selling netbooks using AT&T's and Verizon Wireless's networks in early 2009, and, in July, Sprint followed with a promotional \$0.99 offering for a Compaq Mini netbook that AT&T and Verizon Wireless were selling for \$199.99.¹⁵⁸ Smaller wireless carriers – such as Cellular South and Cincinnati Bell Wireless – also have netbook offerings.¹⁵⁹

¹⁵⁸ See RadioShack Press Release, *RadioShack Introduces 3G Netbook Utilizing AT&T's Mobile Broadband Service To Help People Stay Connected* (Dec. 11, 2008), <http://ir.radioshackcorporation.com/releasedetail.cfm?ReleaseID=359371>; Dell Press Release, *Dell and AT&T Energize On-the-Go Lifestyles with Special Offer for Select \$99 Inspiron Mini 9* (Jan. 9, 2009), <http://content.dell.com/us/en/corp/d/press-releases/2009-01-09-ATT-Mini9-Bundle.aspx>; Verizon Wireless News Release, *Netbooks Hit Verizon Wireless Communications Stores May 17* (May 14, 2009), <http://news.vzw.com/news/2009/05/pr2009-05-14.html>; Christopher Larsen et al., PiperJaffray, *Sprint Getting More Competitive with Netbooks*, at 1

Netbooks are typically sold like handsets: an initial upfront cost is required to purchase the device, but the cost is subsidized if the consumer agrees to a service contract of a particular term (usually one or two years).¹⁶⁰ The customer must subscribe to a wireless data plan in order to activate wireless access for the netbook; price and data allowances vary by plan.¹⁶¹ Consumers can also typically “bring their own netbook” – Cincinnati Bell, for example, offers a rebate for consumers who purchase a netbook independently and choose to have it serviced through them.¹⁶² And if the netbook does not already have an agreement with a service provider, consumers can choose to purchase wireless USB devices that would allow them to access wireless broadband service in conjunction with a wireless data plan.

Myriad other specialty devices embed wireless service in order to provide an attractive service offering. As AT&T explains in detail in its comments in response to the *Wireless Innovation NOI*, AT&T is increasingly investing in machine-to-machine wireless applications that promise to generate enormous consumer welfare.¹⁶³ These efforts have in many respects

(July 6, 2009); Marguerite Reardon, *Sprint Sells Netbook for a Buck*, CNET News.com (July 7, 2009), http://news.cnet.com/8301-1035_3-10280886-94.html.

¹⁵⁹ See Cellular South Press Release, *Cellular South Debuts Netbook with Built-In 3G High-Speed Mobile Broadband* (July 29, 2009), <https://www.cellularsouth.com/news/2009/20090729.html>; James Pilcher, *Technology: Review: Netbooks Worth Checking Out*, Cincinnati.com (Sept. 11, 2009), <http://news.cincinnati.com/article/20090911/BIZ02/909130301/1076/BIZ/Review++Netbooks+worth+checking+out>.

¹⁶⁰ See, e.g., Verizon Wireless, *Plans & Accessories, HP Mini 1151NR Netbook*, <http://www.verizonwireless.com/b2c/hpnetbook/plansaccessories.jsp>.

¹⁶¹ For example, AT&T offers a plan for \$40 per month with an allowance of 200 MB, as well as a plan for \$60 per month with an allowance of 5 GB, with excess usage charges on a per-megabyte basis. AT&T, *DataConnect Plans*, <http://www.wireless.att.com/cell-phone-service/cell-phone-plans/data-connect-plans.jsp>.

¹⁶² Cincinnati Bell, *Netbook Mail-In Rebate*, http://www.cincinnati-bell.com/shared_content/pdf/zoomtown/netbook2_0709.pdf.

¹⁶³ See *AT&T Wireless Innovation NOI Comments* at 44-51.

already paid off. Thus, for example, AT&T has pioneered advances in “telehealth,” working with device manufacturers to remotely monitor a patient’s medical information and wirelessly transmit the information to doctors. Likewise, AT&T has developed path-breaking smart grid wireless applications that promise increased efficiency and savings throughout the nation’s electricity infrastructure.¹⁶⁴ AT&T’s wireless network is also in wide use in numerous other industries, including consumer products, automotive, industrial automation, payments and point of sales, transportation logistics, and security.¹⁶⁵

AT&T also recently launched the AT&T Control Center, powered by Jasper Wireless – a platform to connect and support a variety of consumer electronic and business devices on AT&T’s wireless network. The AT&T Control Center platform will offer automated management capabilities for all manner of device manufacturers, including instant activation when the device is powered on for the first time, usage analytics, performance assurance, customized rate plans that address the needs of particular market segments, design services to optimize devices for global deployment within a few weeks, and customer support to ensure continuity with support from expert engineers.¹⁶⁶ The platform will enable the wireless connection of, for example, personal and in-car navigation devices, e-readers, mobile Internet and gaming devices, and healthcare devices, among others.¹⁶⁷

¹⁶⁴ See AT&T, *Connecting People and Business with Sustainable Solutions*, http://www.att.com/Common/about_us/files/pdf/protect_the_planet/Brochure_ICT_Products.pdf; AT&T News Release, *AT&T To Offer Wireless Smart Grid Technology to Utility Companies* (Mar. 17, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26613>.

¹⁶⁵ See *AT&T Wireless Innovation NOI Comments* at 45-46.

¹⁶⁶ AT&T News Release, *AT&T and Jasper Wireless Launch Integrated Platform to Wirelessly Connect Emerging Devices* (July 22, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26958>.

¹⁶⁷ See *id.*

Nor, of course, is AT&T alone in this respect. General Motors has nearly 6 million subscribers to its exclusive OnStar service, which relies primarily on Verizon Wireless's network to provide services such as automatic crash response, stolen vehicle assistance, turn-by-turn navigation, and vehicle diagnostics, in addition to hands-free calling.¹⁶⁸ Other competitors are following suit with their own exclusive, wireless-based initiatives.¹⁶⁹ Ford, for example, offers an in-dash PC option in some of its trucks, with Internet access provided over Sprint's wireless network.¹⁷⁰ Chrysler, Dodge, Jeep, and Volkswagen offer a similar in-car Internet service, called uconnect web.¹⁷¹ Verizon Wireless and Sprint now offer "MiFi" devices – portable WiFi hotspots that connect WiFi-enabled devices to their 3G wireless networks.¹⁷² General Electric has introduced a digital smart meter that uses wireless connectivity to monitor power use.¹⁷³

¹⁶⁸ General Motors Corporation, Corp., Form 10-K, at 9 (SEC filed Mar. 4, 2009); Verizon Communications Inc., Form 10-K, at 6 (SEC filed Feb. 24, 2009).

¹⁶⁹ See generally Telematics Research Group, *Worldwide Telematics: Regional Markets and Forecast* (Apr. 2002), http://www.atec-tec.net/dossier/03vehicules/TelematicsResearchGroup_resume.pdf.

¹⁷⁰ Olga Kharif, *Cars Gone Wireless*, BusinessWeek (Apr. 9, 2009), http://www.businessweek.com/technology/content/apr2009/tc2009049_588284.htm.

¹⁷¹ See Autonet Mobile Press Release, *Volkswagen Routan To Feature Wifi from Autonet Mobile* (June 9, 2009), <http://www.autonetmobile.com/about/news/ANMVWRoutanPressReleaseJune9FINAL.pdf>.

¹⁷² See Marin Perez, *Sprint MiFi Hotspot Offers Personal 3G*, InformationWeek (May 14, 2009), <http://www.informationweek.com/news/mobility/wifiwimax/showArticle.jhtml?articleID=217500233>.

¹⁷³ See GE Digital Energy Press Release, *CenterPoint Energy Teams with GE on Advanced Metering System* (Mar. 30, 2009), <http://www.microwavedata.com/AboutUs/NewsandEvents/Press-Releases.html?view=Article&task=Article&id=454>. See also Tracy Ford, *Wireless Will Be Used To Make Electrical Grid Smart*, RCR Wireless News (Sept. 3, 2009), <http://www.rcrwireless.com/article/20090903/FRONTPAGE/909039996/wireless-will-be-used-to-make-electrical-grid-smart>; Randy Cauthron, *SMU Going to Wireless Meters*, Spencer Daily Reporter (Aug. 29, 2009), <http://www.spencerdailyreporter.com/story/1565987.html> (wireless

Progressive's "MyRate" auto insurance program relies on a small wireless device plugged into the insured's car that allows Progressive to see how, how much, and when the vehicle is being driven, and which in turn provides drivers with a customized insurance rate.¹⁷⁴ In these and many other ways,¹⁷⁵ more and more devices are becoming wireless-enabled, underscoring both the variation of wireless devices that exist today and the potential of such devices to drive economic growth and consumer welfare in the future.

Exclusive Distribution Arrangements. Smartphones (and smart devices) and smart networks are interdependent both from a technical and economic perspective.¹⁷⁶ As the above discussion makes clear, to remain competitive, carriers have not only invested heavily in their networks, but also have devoted enormous resources in collaboration with device manufacturers to innovate at the device level. That investment has ignited an explosion in the devices available to consumers, which in turn has led to increased usage and, as a result, still more network

meters have been installed in approximately 37 percent of the over 6,000 electric meters, and 32 percent of water meters monitored by Spencer Municipal Utilities).

¹⁷⁴ Progressive News Release, *One-of-a-Kind Car Insurance Program Lets Drivers Save Big Bucks Based on How They Drive* (June 27, 2008), <http://newsroom.progressive.com/2008/June/myrate-launch.aspx>.

¹⁷⁵ See, e.g., Amol Sharma and Roger Cheng, *Sprint Looks To Power Gadgets Beyond Cell Phones*, Wall St. J. (Mar. 24, 2009) (Sprint "is now talking with companies such as GPS device maker Garmin Ltd., Eastman Kodak Co. and SanDisk Corp., which makes storage devices, about delivering wireless Internet service for their products"), <http://online.wsj.com/article/SB123785070580819121.html>; Nilay Patel, *T-Mobile Announces Tiny New "Embedded SIM" for Connected Devices*, Engadget (Apr. 23, 2009) ("T-Mobile's . . . new SIMs are the size of a pinhead and made of silicon instead of plastic, which allows them to be coded at the factory and hard-mounted directly to a device. . . . Devices with the new SIMs are expected to be out and sending data over T-Mo's network in as little as six months – the first is an energy meter from Echelon [a medical device] that should hit soon"), <http://www.engadgetmobile.com/2009/04/23/t-mobile-announces-tiny-new-embedded-sim-for-connected-devices/>.

¹⁷⁶ See Declaration of Thomas W. Hazlett, ¶ 46, GN Docket Nos. 09-157, 09-51 (FCC filed Sept. 30, 2009) ("Hazlett Decl.") (attached to *AT&T Wireless Innovation NOI Comments*); *AT&T Wireless Innovation NOI Comments* at 24-33.

investment, while at the same time spawning innovation and investment at the application level. This recent success story – *i.e.*, the industry’s ability to channel investment into innovative devices – is directly traceable to the benefits of exclusive arrangements between device manufacturers and wireless providers, who have teamed together to share the risks and rewards of innovation.

Courts and economists uniformly recognize that exclusive arrangements – which are commonplace particularly in high-technology, capital intensive industries¹⁷⁷ – can promote innovation, investment, and competition.¹⁷⁸ Exclusivity can enhance each party’s interest in the

¹⁷⁷ As just one example, the video game industry is characterized by three primary platforms – Nintendo (Wii), Sony (PlayStation), and Microsoft (Xbox) – that compete vigorously and that seek to differentiate themselves through exclusive arrangements with developers of specific, highly popular games. “Halo,” for example, is available only for the Xbox, whereas “MLB 09 – The Show” is available only for the PlayStation and “Mario Kart” is available only for the Wii.

¹⁷⁸ See Willig Decl. ¶¶ 52-56; *see also* Declaration of Michael L. Katz, at 26-28, Exh. A to Reply Comments of AT&T Inc., WT Docket No. 09-66 (FCC filed July 13, 2009) (“Katz July 2009 Decl.”); XI Herbert Hovenkamp, *Antitrust Law* ¶ 1810, at 136 (1998) (“[t]he benefits of exclusive dealing are many,” “the potential of exclusive-dealing arrangements to produce beneficial results greatly exceeds their potential for harm,” and these arrangements “should be presumptively lawful in all but a few carefully defined circumstances”); ABA, *Antitrust Law and Economics of Product Distribution*, at 270 (2006) (listing potential procompetitive benefits of exclusive dealing including, “assuring a source of supply or demand, providing guarantees against price increases, and stabilizing future revenue streams or cost estimates” as well as “increas[ing] investments in advertising and promotions by prohibiting free-riding by other dealers” and “benefit[ing] purchasers by providing price savings, improved customer service, the convenience of minimizing the number of suppliers, and reduced storage costs”); *id.* at 283-84 (collecting cases discussing efficiency justifications for exclusive dealing arrangements); *GTE Sylvania Inc. v. Continental T.V., Inc.*, 537 F.2d 980, 997 (9th Cir. 1976) (“[t]here is a veritable avalanche of precedent to the effect that, absent sufficient evidence of monopolization, a manufacturer may legally grant . . . an exclusive franchise”), *aff’d*, 433 U.S. 36 (1977); Benjamin Klein & Andres V. Lerner, *Procompetitive Justifications For Exclusive Dealing: Preventing Free-Riding And Creating Undivided Dealer Loyalty* (Nov. 12, 2006) available at http://www.usdoj.gov/atr/public/hearings/single_firm/docs/219980.htm (discussing numerous benefits of exclusive arrangements including increased dealer promotion and reduction in free riding); Benjamin Klein & Kevin M. Murphy, *Exclusive Dealing Intensifies Competition for Distribution*, 75 *Antitrust L.J.* 433, 437-38 (2008) (explaining that competition by manufacturers to obtain exclusive arrangements with distributors benefits consumers); Gregory Rosston &

competitive success of the venture. That enhanced incentive, in turn, increases each party's willingness to invest in the innovation: a party that might otherwise be concerned about free-riding can, through exclusivity, obtain some level of assurance that his investment in the many activities necessary to bring a product to market – research and development, manufacturing, promotions, staff training, network improvements, etc. – will not be stranded. Of particular importance in a technologically sophisticated industry, exclusivity can also encourage collaboration among partners who might otherwise be far less willing to cooperate on development activities.

The benefits of exclusive vertical agreements in a competitive marketplace are manifest in wireless.¹⁷⁹ Exclusive handset distribution arrangements have encouraged collaboration among network providers and manufacturers that has optimized handset performance and accelerated the delivery of next-generation features. They have increased carriers' incentives to make purchase commitments and to invest in promotions, network improvements and special training of sales staff. They have lowered manufacturers' barriers to entry and served as a key tool to maintain brand value. And, critically, they have encouraged other carriers and manufacturers to invest their own resources to improve their own handset portfolios or the prices, features and other characteristics of their existing offerings.

The iPhone – born of AT&T's exclusive arrangement with Apple – makes all of this abundantly clear. Released in June 2007, the iPhone represented a giant leap forward in smartphone design and functionality. The product has been extremely well received among

Michael Topper, *An Antitrust Analysis of the Case for Wireless Network Neutrality*, SIEPR Discussion Paper No. 08-040, at 7 (Aug. 2009) (“A large economics literature details efficiency rationales for vertical restrictions on suppliers or distributors.”).

¹⁷⁹ See Willig Decl. ¶¶ 26-29, 52-56; see Katz July 2009 Decl. at 26-28.

consumers,¹⁸⁰ and, to keep up with the exploding network usage that has resulted, AT&T has continued to invest billions in upgrading its infrastructure and deploying next generation networks. As explained, moreover, the popularity of the iPhone has triggered a vigorous competitive response, as competing carriers strive to match and exceed the popularity of the iPhone with their own devices, available through their own exclusive distribution agreements. The iPhone, in short, was a “game-changer.”¹⁸¹ It “rais[ed] the bar for competitive handset launches,”¹⁸² and drove “greater data adoption for the overall industry.”¹⁸³ And, while the

¹⁸⁰ See AT&T News Release, *Strong Wireless Growth, Continued Cost Discipline, Solid Free Cash Flow Highlight AT&T's Second-Quarter Results* (July 23, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26961>; AT&T News Release, *AT&T's First Quarter Results Highlighted by Wireless Gains, U-Verse TV Growth, Double-Digit Increase* (Apr. 22, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26752>; AT&T News Release, *AT&T Reports Fourth-Quarter and Full-Year Results Highlighted by Robust Wireless Data Growth, Accelerated U-Verse TV Ramp, Continued Double-Digit Growth in IP Data Services* (Jan. 28, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26502>; AT&T News Release, *Strong Wireless Gains, Sound Operational Execution Highlight AT&T's Third Quarter; Results Led by 2.4 Million iPhone 3G Activations, Rapid Wireless Data Growth* (Oct. 22, 2008), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26227>. See AdMob, *AdMob Mobile Metrics Report*, at 4 (June 2009), <http://metrics.admob.com/wp-content/uploads/2009/07/admob-mobile-metrics-june-09.pdf> (estimating 13 million U.S. iPhones as of June 2009); Phil Cusick et al., Macquarie Research, *Apple: iPhone Exclusivity in China*, at 7 (Aug. 31, 2009) (AT&T has sold 11.1 million iPhones as of June 2009, and there are nearly 9 million iPhones on its network).

¹⁸¹ See, e.g., Simon Flannery & Daniel Gaviria, Morgan Stanley, *AT&T, Inc.: Defensive Qualities Evident*, at 3 (Oct. 23, 2008) (“The iPhone is a game changer”); Timothy Horan et al., Oppenheimer, *2Q08 Mid-Quarter Review: 2Q08 Telecom Results Weak, But Mostly in Line with Expectations*, at 4 (Aug. 11, 2008) (“We believe that the 3G iPhone will be a game changer for the communications industry with true web browsing capabilities at real-time speeds.”); Phil Cusick et al., Macquarie Research, *Wireless Emerging Devices: Smartphones To Drive Data Revenue*, at 12 (Mar. 30, 2009) (“Since the iPhone, there have been a number of similar branded phones available exclusively on one carrier, such as the Samsung Instinct and ... Palm Pre (Sprint), Blackberry Storm (Verizon), and HTC G1 (T-Mobile USA).”).

¹⁸² Jason Armstrong et al., Goldman Sachs, *Americas: Wireless: The Mobile Data Opportunity – Finding the Best Spots in the Food Chain*, at 4 (Apr. 17, 2008).

¹⁸³ Christopher Larsen et al., PiperJaffray, *July Channel Checks Consistent with 2Q Results and Carrier Comments*, at 1 (Aug. 7, 2009).

iPhone's popularity obviously boosted AT&T's sales, it cannot plausibly be said to have *impeded* competition, any more than the popularity of the video game "Halo" – and the attendant boost in Xbox sales – can somehow be said to have impeded competition in the video game industry.¹⁸⁴

In retrospect, of course, it is easy to view the iPhone as a great boon for AT&T and Apple. In fact, both companies risked a great deal. Apple had never before successfully developed and marketed a wireless handset. Its only previous venture into the handset arena – a three-party alliance among Apple, Motorola, and AT&T to develop and market the iTunes-enabled ROKR – was a failure.¹⁸⁵ For its part, although AT&T was in the midst of deploying its 3G broadband network, it had little practical experience in managing the network demands that come with enabling the intense wireless data usage that has resulted from the device's popularity.

AT&T made many substantial investments to help make the iPhone an innovative product. For example, AT&T invested thousands of man-hours working with Apple on critical issues such as fine tuning the RF signals used by the handset to maximize performance and battery life. AT&T also made significant contributions to innovative features of the iPhone, such as its "visual voicemail" feature (in which recorded calls are stored directly on the individual customer's handset). This feature had not been offered before, and AT&T therefore had to

¹⁸⁴ See *supra* n. 177 (explaining that many popular video games are exclusive to particular video game consoles).

¹⁸⁵ See Michael Mace, *Motorola Rokr: Instant Failure*, Mobile Opportunity (Nov. 2005), <http://mobileopportunity.blogspot.com/2005/11/motorola-rokr-instant-failure.html>; Frank Rose, *Battle for the Soul of the MP3 Phone*, Wired (Nov. 2005), http://www.wired.com/wired/archive/13.11/phone.html?pg=1&topic=phone&topic_set=; see also Reply Comments of AT&T Inc., *Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition*, WT Docket No. 09-66, at 37-38 (FCC filed July 13, 2009).

develop and deploy the hardware and software necessary to implement visual voicemail (and other carriers have since made similar investments). AT&T also invested in new purchase and activation systems for the iPhone that would interact in real time with iTunes and would allow Apple's unique handheld point of sale devices to interface with AT&T's wireless service activation systems. AT&T significantly increased the capacity of its network to support the additional data traffic expected from iPhone users. AT&T also invested enormous resources in the promotion of the iPhone, and in special training for thousands of sales employees. And, as Apple has continued to add functionality to the iPhone, AT&T has continued to make these types of investments, including accelerating its deployment of 3G services throughout the U.S. and expanding the capacity of its 3G network. All of AT&T's 3G wireless customers benefited from these additional network investments, and performance improvements by AT&T have spurred other carriers to accelerate their own capacity investments, providing additional benefits to their customers.

To be sure, AT&T's investments in the iPhone have borne fruit: The product has been a success. But there were no guarantees at the time, and the Commission must be mindful not to confuse foresight with hindsight in considering the pleas of the disappointed competitors who, rather than rising to the competitive challenge, would ask the Commission to put in place rules that would inhibit the development of the next "game changer."¹⁸⁶

Subsidized Handsets and ETFs. Just as exclusive handset distribution agreements are a defining, pro-competitive feature of the wireless industry, so too are subsidized handsets. And, like exclusive handset distribution agreements, subsidized phones – and the term commitments

¹⁸⁶ See Willig Decl. ¶¶ 26-29, 52-56.

and ETFs that go hand-in-glove with them – enhance consumer choice and are manifestly procompetitive.

As an initial matter, there can be no doubt that handset subsidies drive penetration of new and innovative handsets and services. Without subsidies, price would deter the penetration of new wireless devices. For example, AT&T offers the iPhone 3G to consumers at a price significantly below its cost – that subsidy has made the iPhone accessible to millions of consumers. And, again, the success of the iPhone has resulted in innovation by other wireless carriers. Subsidies – and the term commitments and ETFs that are necessary to permit providers to recoup the cost of subsidies – thus played a crucial role in the recent wave of innovation in smartphones.¹⁸⁷

What is more, wireless services are overwhelmingly available without ETFs. Virtually all of the devices sold by AT&T are available with or without a term plan. Consumers who choose a subsidized device must commit to a term plan; consumers who are willing to pay list price for a device, or who avail themselves of AT&T's "bring your own device" offer, need not. Moreover, consumers can choose from a broad and increasing array of pre-paid wireless service options that have no contract term obligations (and, hence, no ETF), and that are typically lower in price than post-paid services.¹⁸⁸ In addition, even for consumers who prefer to purchase monthly service, the vast majority of wireless devices are available without an ETF. In short,

¹⁸⁷ ETFs also allow carriers to offer lower rates for wireless services to consumers by giving carriers certain and stable revenue flows, and by providing compensation for the lost revenues and up-front costs caused by early termination. In that way, as well, ETFs contribute to the penetration of wireless services.

¹⁸⁸ See, e.g., Craig Moffett et al., BernsteinResearch, *Quick Take – U.S. Wireless: Sifting Through the Wreckage . . . A Q2 Scorecard*, at 2 (Aug. 6, 2009) (“[J]ust six months ago, post-paid all-you-can eat plans were priced at ~ 50% premium to prevailing prepaid plans. That gap is suddenly ~225%.”); Craig Moffett et al., BernsteinResearch, *Weekend Media Blast: How the Other Half Lives*, at 2 (Sept. 18, 2009) (“The gap between pre-paid and post-paid ‘everything’ plans has widened to nearly \$100 per month.”).

although a subsidized handset is an option for consumers (and a popular one at that), consumers who would prefer to pay full price for a phone and take on no term commitment are generally free to do so.

Finally, it bears emphasis that consumers who do opt for a subsidized handset and accompanying term commitment are typically given a window within which they may cancel their service and return their device, subject only to a modest restocking fee. AT&T, for example, offers a 30-day trial window in which ETFs are not applied for any plan, as do Sprint and others.¹⁸⁹ Moreover, AT&T and most other carriers have begun prorating any ETFs that do apply. These pro-consumer policies belie any need for government intervention. Indeed, given that most consumers prefer a subsidized handset and accompanying term plan to an unsubsidized handset without a term plan, it would be demonstrably anti-consumer for the Commission to deny them that option.

3. Additional “Edge” Market Segments Are Highly Competitive

The variation, consumer choice, and innovation that characterize the network provider and device segments of the wireless industry are mirrored in the application and operating system segments. As network providers have invested billions in next generation networks, and as wireless providers and device manufacturers have worked to develop handsets optimized to take advantage of those networks, applications developers have responded with a blizzard of new and innovative applications that are proving enormously popular with consumers. And the

¹⁸⁹ See AT&T, *Plan Terms*, <http://www.wireless.att.com/cell-phone-service/legal/plan-terms.jsp>; Verizon Wireless, *Customer Agreement*, http://www.verizonwireless.com/b2c/globalText?textName=CUSTOMER_AGREEMENT&jspName=footer/customerAgreement.jsp; Sprint, *Early Termination Fee*, http://nextelonline.nextel.com/en/services/termination_fee/early_termination_fee.shtml?id9=vanity:etf; T-Mobile, *T-Mobile Terms and Conditions*, http://www.t-mobile.com/Templates/Popup.aspx?PAsset=Ftr_Ftr_TermsAndConditions&print=true.

growing array of operating systems with diverse business models on which to run these applications, coupled with the support, consultation and review processes available to them by application store providers, ensures that applications developers will have no shortage of outlets for bringing the fruits of their innovation to consumers.

Operating Systems. Wireless handsets today run a range of operating systems developed by third-party providers.¹⁹⁰ Neither AT&T nor any other carrier currently produces the operating system for any wireless device. Rather, AT&T offers consumers the choice of more than 100 wireless devices from the world's leading manufacturers, including Motorola, Nokia, Palm, LG, Samsung, Apple, RIM, Pantech, and Sony Ericsson, which in turn run a range of operating systems, including BlackBerry, Palm OS, iPhone OS, Windows Mobile, Symbian, and Java.¹⁹¹ AT&T also offers a "Bring Your Own Device" program that permits consumers to purchase their own compatible GSM wireless device, running on the operating system of their choice.¹⁹²

The variation in operating systems used in devices running on AT&T's network is matched by other providers in the industry. Verizon Wireless, for example, sells devices that run Palm OS, BlackBerry, and Windows Mobile, among others.¹⁹³ Sprint supports Android, Java

¹⁹⁰ See, e.g., Michael L. Katz, *Public Policy Principles for Promoting Efficient Wireless Innovation and Investment*, GN Docket Nos. 09-157 and 09-51, at Table 2 (FCC filed Sept. 20, 2009) (attached to *AT&T Wireless Innovation Comments*).

¹⁹¹ See AT&T Choice, *Developers: Choose Your Strategy*, <http://choice.att.com/developers/GettingStarted.aspx>; AT&T, *Platforms & Operating Systems*, <http://developer.cingular.com/developer/index.jsp;jsessionid=WP2Y0RLVPRTIFB4R0EWCPJUHOHIS0SXW?page=toolsTechOverview&id=800048>.

¹⁹² See AT&T Choice, *Customers: Devices*, <http://choice.att.com/flash/customersdevices.aspx>.

¹⁹³ See Verizon, *Verizon Development Center*, http://developer.verizon.com/downloads/Smart_Phone/PDF/SmartphoneDevices.pdf; Verizon, *Verizon Developer Community: Why Verizon?*, http://developer.verizon.com/jsps/devCenters/Network_Enablers/Landing_Pages/msg_cntr_why_vz.jsp.

ME, BlackBerry, Palm, Windows Mobile, the Brew mobile platform, and others.¹⁹⁴ And T-Mobile uses Android, RIM, Windows Mobile, SideKick, Motorola, Nokia, Samsung, and Sony Ericsson OS, among others.¹⁹⁵

Among the more recently developed operating systems is Android, an avowedly “open” operating system which is already available on multiple devices, with more expected in the coming months.¹⁹⁶ In the Android model, the operating system is reportedly accessible to any developer with no pre-certification process; rather, the Android user community is expected to vet objectionable, inefficient, or unworkable applications.¹⁹⁷

¹⁹⁴ See Sprint, *Develop: Technologies*, http://developer.sprint.com/site/global/develop/technologies/p_technologies.jsp; Sprint, *Devices: Devices*, https://developer.sprint.com/show_devices.do; Sprint News Release, *Sprint Plans To Expand Customer Options by Launching Qualcomm’s Brew Mobile Platform* (Sept. 11, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=127149&p=irol-newsArticle_Print_newsroom&ID=1330867&highlight=.

¹⁹⁵ See T-Mobile Partner Network, *Mobile Applications and Games Development Resources*, http://developer.t-mobile.com/site/global/develop_tools/apps_games/p_platforms.jsp; T-Mobile Partner Network, *All Devices*, <http://developer.t-mobile.com/browseDevice.do?keyword=device+keyword+search>.

¹⁹⁶ See Taylor Wimberly, *Sprint vs. T-Mobile: Which is the Best Android Carrier?*, CNETNews.com (Sept. 14, 2009), http://www.cnet.com/8301-19736_1-10351108-251.html (T-Mobile carries the G1 and the MyTouch 3G; the Motorola Cliq will be released later this year); Cellular South Press Release, *Cellular South Announces Launch of the HTC Hero; Android-Powered Smartphones Poised for Success* (Sept. 21, 2009), <https://www.cellularsouth.com/news/2009/20090921.html> (consumers can pre-order the Android-powered HTC Hero from Cellular South beginning October 5, 2009); see also Google And Blog, *Android Phones FAQ*, <http://www.googleandblog.com/faq-about-google-android/> (updated Sept. 26, 2009) (listing more than 10 Android devices available overseas).

¹⁹⁷ See Letter from Richard Whitt, Google Inc., to James Schlichting, FCC, re: Apple’s Rejection of the Google Voice for iPhone Application, at 5-6 (Aug. 21, 2009), http://wireless.fcc.gov/releases/9182009_Google_Filing_iPhone.pdf (“[T]here is no pre-approval process conducted by Google or any third-party before applications submitted by a registered developer (*i.e.*, developers who have provided verified credit card information) are available for download by users. There is a limited automated analysis that is performed on all uploaded applications at the time of submission, to identify technical issues that would prevent installation by the user and to notify the developer of these issues. . . . This automated process does not screen or reject applications on the basis of content or functionality. . . . Once an application has

Here again, the range of devices available to consumers, and the range of operating systems those devices run, translates into choices for consumers. As explained at the outset and discussed further below, as a means to ensure security and the efficient operation of the network, most operating systems require some level of pre-certification before running third-party provided applications. But those who prefer a different environment – one in which consumers themselves, rather than app store owners, assume responsibility for avoiding potentially harmful apps – plainly have options.

Applications. The volume of applications available to wireless consumers, and the rate at which consumers are downloading them, are stunning. Apple now boasts more than 85,000 applications in its App Store, and users have downloaded more than 2 *billion* of them.¹⁹⁸ And, although Apple's App Store is perhaps the best known, it is far from the only source of third-party applications for handsets – indeed, it is not even the largest. Each of the four national carriers, many handset makers, many operating systems suppliers, and numerous others have applications stores where customers can download applications to their handsets.¹⁹⁹ Many of

been uploaded by the developer and made available for users of Android-powered handsets, the Android Market community is relied upon to flag applications that do not abide by our policies. An application that has received a threshold number of user flags is reviewed by Google staff and a determination as to whether the application violates our policies is made within approximately three days.”).

¹⁹⁸ See Apple Press Release, *Apple's App Store Downloads Top Two Billion* (Sept. 28, 2009), <http://www.apple.com/pr/library/2009/09/28appstore.html>.

¹⁹⁹ See, e.g., Nokia Press Release, *Ovi Store Opens for Business* (May 26, 2009), <http://www.nokia.com/press/press-releases/archive/archiveshowpressrelease?newsid=1317441>; Palm Press Release, *Palm Unveils More webOS Details: Palm Media Sync, Twitter Integration, App Catalog* (May 28, 2009), <http://investor.palm.com/releasedetail.cfm?ReleaseID=386488>; RIM Press Release, *RIM Launches BlackBerry App World: Users Able To Easily Discover and Download a Wide Range of Applications Directly from Their BlackBerry Smartphone* (Apr. 1, 2009), <http://press.rim.com/release.jsp?id=2223>.

these stores offer thousands of free applications; where an application is available for a fee, the charge ranges from \$0.99 to more than \$500.²⁰⁰

Store	Number of Applications	Number of Free Applications
Manufacturer App Stores		
Apple App Store	85,000+	15,058
Android Market	11,459	7,310
BlackBerry App World	2,734	658
Nokia Ovi Store	3,310	448
Palm App Catalog	80	80
Palm Software Store	5,000+	1,000+
Carrier and Third-Party App Stores		
AT&T MEdia Mall	90,000*	unknown
Handango	140,000+	unknown
HandMark	unknown	unknown
HandMarket Apps	1,200	unknown
Sprint Software Store	unknown	unknown
T-Mobile Web2Go	unknown	unknown
Verizon Wireless Mobile Web Games and Apps Store (formerly Get It Now!)	800	unknown

*includes applications, ringtones, wallpapers, and games

Sources: **Apple.** Apple Press Release, *Apple's App Store Downloads Top Two Billion* (Sept. 28, 2009); *148apps.biz*, *App Store Metrics: App Prices*, <http://148apps.biz/app-store-metrics/?mpage=appprice> (last visited Sept. 28, 2009). **Android.** *AndroLib*, *Distribution of Free and Paid Apps*, <http://www.androlib.com/appstatsfreepaid.aspx>. **BlackBerry.** BlackBerry, *BlackBerry App World: Browse All Categories*, <http://appworld.blackberry.com/webstore/category/12>. **Nokia.** Nokia Ovi Store, *Applications*, <https://store.ovi.com/?lid=storeheader&lang=en-US#/index?priceType=free&q=&contentArea=home>. **Palm App Catalog.** Jonathan Legget, *Palm Pre Mobile Phone to Get Paid-For Apps This Week*, *Top 10 Mobile Phones* (Sept. 21, 2009), http://www.top10.co.uk/mobilephones/news/2009/09/palm_pre_mobile_phone_to_get_paid_for_apps_this_week/. **Palm Software Store.** Palm, *Palm App Store*, <http://appstore.pocketgear.com/palm/>. **AT&T MEdia Mall.** AT&T Press Release, *AT&T Customers Get More Mobile Broadband Coverage in Greater Philadelphia* (Sept. 24, 2009); see also AT&T Press Release, *AT&T Announces Top Mobile Apps and Games of First Quarter* (May 4, 2009). **Handango.** Handango, Inc. Press Release, *Handango and 3UK To Bring Premium Apps to Smartphone Customers Directly on Their Devices* (Aug. 31, 2009). **HandMarket Apps.** Windsor Holden, *Juniper Research, Handmark Gets in on the App Store Act*, *Analyst XPress* (Aug. 5, 2009), <http://www.juniperresearch.com/analyst-xpress-blog/2009/08/05/handmark-gets-in-on-the-app-store-act/>. **Verizon Wireless Mobile Web Games and App Store.** Verizon. *Get It Now Search*, <https://s-cache.getitnow.vzwshop.com/imgs/appmedia/3547.pdf>; Verizon Wireless Press Release, *Get to Games and Application Directly from the Mobile Web on Verizon Wireless Phones* (Apr. 2, 2009); Verizon Wireless Press Release, *Mobile Content Is Star at Verizon Wireless*, PR Newswire (Apr. 2, 2009).

Moreover, an app store is not the only medium through which apps are available to consumers.

Apps can be directly downloaded to many devices from the web. The robust supply of applications available to wireless subscribers – and the multitude of sources through which those applications are available – means that anyone with an innovative application can find a medium through which to distribute it.

Although, as noted, developers can distribute apps to many devices directly over the Internet, developers who wish to develop and distribute applications through an app store have a

²⁰⁰ See, e.g., *148Apps.biz*, *App Store Metrics: Application Price Distribution*, <http://148apps.biz/app-store-metrics/?mpage=appprice>.

host of tools available to assist them in accomplishing that result. AT&T, for example, provides extensive support for developers that wish to use AT&T's MEdia Mall, including a "Developer" tool on its website that makes AT&T's Universal Design guidelines available to developers to help them design applications that can be sold on AT&T's MEdia Mall (or elsewhere).²⁰¹ AT&T currently has more than 20,000 developers registered in its devCentral developer relations program,²⁰² and AT&T collaborates with developers to create applications and content for all of the world's major mobile operating systems. AT&T also makes available software development kits (SDKs) from several device and operating system manufacturers, testing tools for mobile applications, simulators for testing applications, "programming guides" with "in-depth technical discussion of different wireless technologies," "style guides" that "describe best practices and requirements for the different AT&T distribution channels," white papers with "developer insights, recommendations, and technical information," an "AT&T Apps Beta" program that allows developers to test applications with customers and receive customer feedback, and

²⁰¹ See AT&T Choice, *Developers: Choose Your Strategy*, <http://choice.att.com/developers/GettingStarted.aspx>; see also AT&T Choice, *Developers: Create It*, <http://choice.att.com/developers/CreateIt.aspx> ("Whether you are building a mobile web site or a downloadable application or even an application for the device's native operating system, we provide you with the tools and resources to help. In addition to the usual tools like SDKs, emulators, and custom APIs, AT&T offers dev support in the form of expert tutorials, web boards, webcasts and podcasts.").

²⁰² See AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068>.

numerous other resources.²⁰³ As a result of all of this, the MEdia Mall today offers more than 90,000 applications and other device content from more than 115 content providers.²⁰⁴

AT&T's approach, however, is just one of many options available to applications developers and consumers. As noted, in the Google/Android model, the operating system is reportedly accessible to any developer with no pre-certification process, thus allowing Google and its broadband and device partners to offer a different, competing customer experience – one that may be preferred by some consumers, but that involves its own trade-offs as the consumer bears a greater risk of malware and lower quality applications (as Google itself has acknowledged, “not having a pre-approval process can lead to a lot of shoddy and useless applications being passed through”).²⁰⁵ Likewise, the 700 MHz C Block licensee is subject to the Commission's “any device/any application” open access requirements. The C block licensee

²⁰³ AT&T, *AT&T Developer Resources*, <http://developer.att.com/developer/index.jsp?page=toolsTechOverview&id=800064&WT.svl=800064>; AT&T, *Apps Beta*, <http://appsbeta.wireless.att.com/login?id=choiceconsumer>.

²⁰⁴ See AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835>; AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068>.

²⁰⁵ See Casey Chan, *Android Users Ban Apps from Android Market, Not Google*, Android Central (Aug. 26, 2009), <http://www.androidcentral.com/android-users-ban-apps-android-market-not-google>; see also Bob Tedeschi, *Cellphones Largely Immune to Viruses, for Now*, N.Y. Times (Aug. 13, 2009), http://www.nytimes.com/2009/08/13/technology/personaltech/13smart.html?_r=1 (“[M]obile software shops – like the Research in Motion App World for BlackBerrys, the Apple App Store, the Nokia Ovi Store and the application stores of the various wireless operators – test and approve programs before selling them. . . . Google, whose Android software runs the newest generation of smartphones, . . . said consumers must rely on user feedback to determine whether to trust a software maker. That leaves some risk, since newer apps in Android's ‘Market’ will have too little feedback for it to be of real use.”); Samantha Rose Hunt, *Android: Browser So Vulnerable Users Urged Not To Use It*, TG Daily (Feb. 13, 2009), <http://www.tgdaily.com/content/view/41445/108> (a “security researcher presented a new vulnerability in Google's mobile OS Android, which lets hackers take control of the phone's web browser and other processes from a remote location”).

thus may not disable features on devices provided to customers nor lock devices so that they work only on the licensee's network; it must allow devices to access any and all capabilities of the licensee's C Block network; and it must ensure that devices the licensee provides to customers are open to any and all applications.²⁰⁶ As the Commission has explained, these requirements – which depart from the Commission's long-held policy of licensing spectrum without restrictions on a flexible-use basis, and which were adopted "on a limited basis" so that the Commission could "observe the real-world effects" of an open-access mandate²⁰⁷ – are unique to the 700 MHz C Block and go beyond the obligations applicable to licensees of other spectrum,²⁰⁸ and they will thus ultimately give consumers yet another model to choose from.

Consumers, in short, have choices – not only in the applications they choose, but in the degree to which their provider plays a role in reviewing and certifying those applications. That choice must be preserved. As noted above, wireless penetration in the U.S. has now reached 87 percent, totaling more than 270 million subscribers. Among those millions are surely a large volume of subscribers that relish the opportunity to take part in Android's "open-source" user community, and that wish to decide for themselves whether a particular app may be harmful, inefficient, or worthless (or, in Google's words, "shoddy"). But those characteristics do not

²⁰⁶ See 47 C.F.R. § 27.16(b), (e); *see also id.* § 27.16(b)(1)-(2) (establishing limited exception to open devices and applications requirements where "use would not be compliant with published technical standards reasonably necessary for the management or protection of the licensee's network," or "[a]s required to comply with statute or applicable government regulation").

²⁰⁷ *Second Report and Order*, ¶ 205.

²⁰⁸ See *id.* ¶ 202 (explaining that the Commission is not obligated to "treat all spectrum-based services identically" and need not "adopt a single regulatory model to assign spectrum rights in all bands"); *id.* ¶ 206 (applying open access requirements to "only C Block licensees"); *id.* ¶¶ 203-205 (applying open access requirements "only on a limited basis" and declining to apply such requirements to other spectrum blocks due to concerns about disruption of existing services and other "unanticipated drawbacks").

define all wireless subscribers. On the contrary, many subscribers may, for whatever reason – be it time, interest, or technical facility – prefer to delegate that job to their device manufacturer, network provider, or app store owner (or some combination of the three). It would be a profound mistake for this Commission – in the face of one of the most vibrant and popular developments in the history of the telecommunications industry – to adopt rules that prevent those consumers from making that choice.

Some parties, nonetheless, are asking the Commission to do just that. Notwithstanding the tens of thousands of applications that have become available to consumers in little over a year, and notwithstanding the billions of downloads of such applications during that time, they point to the unavailability of a single application (a 3G VoIP application) on a single device (the iPhone) as purported evidence of a looming market failure requiring Government intervention to ensure an “open Internet.” This claim is remarkably thin on its face, but it is even more so when one considers all the facts. For one thing, Skype plainly has had no problem making its application available to consumers. According to Skype itself, Skype applications are available on more than 100 handsets, including those using Windows Mobile and Android operating systems.²⁰⁹ AT&T itself permits Skype 3G applications to be downloaded to several of the phones it offers. It also permits Skype Wi-Fi applications on any phone, including the iPhone, and a Skype Wi-Fi application is currently available for download in the iTunes App Store.

Beyond that, claims that AT&T’s policy with regard to Skype somehow portends a more generalized threat to Internet openness ignore the unique circumstances underlying that policy.

²⁰⁹ Skype News Release, *Worldwide, Consumers Still Perceive Wide Gap Between Their Computers and Mobile Devices; Want Greater Control Over Mobile Experience* (Mar. 17, 2009), http://about.skype.com/2009/03/worldwide_consumers_still_perc.html; *see also* Skype, *Use Skype: Mobile*, <http://www.skype.com/mobile/> (identifying devices that can run Skype mobile).

As has been widely publicized, AT&T sells the iPhone at prices that reflect an enormous subsidy – the largest subsidy AT&T ever has offered on a wireless handset, on both a per-unit and aggregate basis. That subsidy has made the iPhone accessible to millions who might not otherwise have been able to afford it. From a consumer standpoint, it has been an unquestionable positive. That subsidy was, not surprisingly, predicated on certain assumptions regarding the monthly service revenues that would be generated by iPhone users. AT&T has indicated that it plans to “take a fresh look at possibly authorizing VoIP capabilities on the iPhone for use on AT&T’s 3G network.”²¹⁰ But its current policy of limiting such applications must be understood in light of that subsidy. That is especially the case given that AT&T does not restrict text messaging applications or applications that compete with AT&T’s own applications from any device, including the iPhone. Nor does AT&T block or otherwise restrict the ability of users to access any lawful website. In short, and with all due respect to net neutrality advocates, the false significance attached to AT&T’s policy with regard to a 3G VoIP application for the iPhone seems more like an attempt to justify a pre-conceived regulatory agenda than an honest assessment of the need for that agenda.

C. Wireless Competition Extends Across All Geographic Market Segments, Urban and Rural Alike

The *NOI* (§ 33) asks “how competition differs between urban and rural areas” and why? AT&T’s own experience here is instructive. AT&T’s network alone provides coverage to close to 95 percent of the U.S. population, a percentage that will increase further upon approval of AT&T’s acquisition of wireless assets from Verizon that are located primarily in rural areas

²¹⁰ Letter from James W. Cicconi, AT&T, to Ruth Milkman, FCC, RM-11361, RM-11497, at 8 (Aug. 21, 2009).

across 18 states.²¹¹ By comparison, approximately 20 percent of the U.S. population lives in areas that are characterized as rural according to U.S. census data. Thus, AT&T alone provides coverage to the vast majority – at least three quarters – of rural America.

AT&T faces extensive competition in rural areas, just as it does in other parts of the country. The Commission's own data bear this out. According to the last CMRS report, more than 95 percent of the U.S. population was living in census blocks with at least three competing wireless carriers.²¹² According to these data, even the least populated "counties with population densities of 100 persons per square mile or less . . . have an average of 3.6 mobile competitors," which is only marginally fewer than the average of 4.3 competitors in the nation as a whole.²¹³ The Commission correctly concluded, therefore, that "CMRS providers are competing effectively in rural areas."²¹⁴

The extensive competition in rural areas is ensuring that rural consumers receive access to the most advanced wireless services and devices.²¹⁵ AT&T has broadly upgraded its network to 3G technology, including in numerous rural areas,²¹⁶ Verizon Wireless has announced its LTE

²¹¹ See AT&T News Release, *AT&T To Acquire Divestiture Properties from Verizon Wireless, Enhance Network Coverage and Customer Service* (May 8, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26803>.

²¹² See *Thirteenth Report* ¶ 2.

²¹³ *Twelfth Report* ¶ 105.

²¹⁴ *Id.* at ¶ 110.

²¹⁵ See Reply Comments of CTIA – The Wireless Association, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 2 (FCC filed July 21, 2009) ("90 percent of Americans live in areas with more than four 3G wireless broadband service providers").

²¹⁶ See AT&T News Release, *AT&T Extends Nation's Fastest 3G Mobile Broadband Network to Decatur, Granbury and Weatherford* (Aug. 4, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27039>.

technology will be deployed nationwide,²¹⁷ and smaller wireless carriers that focus on rural areas have indicated that they are broadly deploying 3G technology. For example, US Cellular states that it “has 3G coverage enabled on about 60% of its cell sites,” and provides “[b]roadband coverage to many unserved and underserved areas.”²¹⁸ Stelera Wireless, based in Oklahoma City, was “founded a couple years go . . . with one goal in mind and that was to go build rural broadband only networks,” which they have now deployed “in over 20 communities, communities that are 20,000 people and below, true rural.” Stelera also is “in the process of building out 55 communities around the U.S. today,” which it will complete by the end of 2009, and in 2010 “will begin building out an additional 250 cities across the U.S.”²¹⁹ As the discussion above makes clear,²²⁰ this is just a small sampling – virtually *all* wireless providers, no matter their size, are investing heavily to deploy next generation technology in their service areas. Moreover, smaller wireless carriers, along with other infrastructure providers, have together applied for more than \$800 million of stimulus funding from the American Recovery

²¹⁷ See, e.g., Marguerite Reardon, *Verizon Promises 4G Wireless for Rural America*, CNET News.com (Apr. 1, 2009), http://reviews.cnet.com/8301-12261_7-10209933-51.html (Verizon Wireless “plan[s] to roll out LTE throughout the entire country, including places where we don’t offer our CDMA cell phone service today.” (quoting Tony Melone, Verizon Wireless Senior VP and CTO)).

²¹⁸ U.S. Cellular, *Expanding Wireless Broadband Services and Increasing Wireless Competition*, at 2 (Sept. 8, 2009), attached to Letter from W. Lavey, Skadden, Arps, Slate, Meagher & Flom LLP to Marlene Dortch, FCC, Docket Nos. 09-51 et al. (FCC filed Sept. 9, 2009).

²¹⁹ FCC National Broadband Plan Workshop, Wireless Broadband Deployment – General, Transcript at 19 (Aug. 12, 2009) (Ed Evans, CEO, Stelera Wireless), http://www.broadband.gov/docs/ws_03_deploy_wireless_transcript.pdf (“Wireless Broadband Hearing, Tr.”).

²²⁰ See *supra* pp. 17-18.

and Reinvestment Act of 2009, which, if granted, will further accelerate the deployment of mobile broadband in rural areas.²²¹

AT&T and other wireless carriers also make the same handsets available in rural areas as they do in other parts of the country, and generally provide the same wireless service plans.²²²

²²¹ For example, KeyOn Communications, a wireless broadband provider specializing in rural areas, has requested \$150 million. *See* KeyOn Communications News Release, *KeyOn Files Applications for \$150 Million of Federal Broadband Stimulus Funds Under the American Recovery and Reinvestment Act of 2009* (Aug. 19, 2009), <http://www.keyon.com/investors.html#0819>. U.S. Cellular has requested \$23.5 million to provide wireless broadband to rural areas of California, Kansas, Missouri, and Nebraska. *See* Marin Perez, *U.S. Cellular Seeks Stimulus Grants*, Informationweek.com (Sept. 14, 2009), <http://www.informationweek.com/news/government/mobile/showArticle.jhtml?articleID=220000265>. ERF Wireless has applied for \$24.6 million to build a WiMAX network for rural areas in east Texas and Louisiana. *See Broadband Stimulus Round 1 Applicants: ERF Wireless Applies for \$24.6 Million in Louisiana and Texas*, StimulatingBroadband.com (Sept. 11, 2009), http://www.stimulatingbroadband.com/2009/09/broadband-stimulus-round-i-applicants_11.html. Rural wireless broadband carriers have partnered with Versar, Inc. and Lemko Corporation, a software provider for mobile networks, and submitted grant applications of more than \$150 million. *See Broadband Stimulus Round 1 Applicants: Versar and Lemko Apply for \$150 Million*, StimulatingBroadband.com (Sept. 18, 2009), http://www.stimulatingbroadband.com/2009/09/broadband-stimulus-round-i-applicants_18.html. And many other small providers have sought stimulus funding for rural broadband. *See* Broadband USA, *Applications Database: Search Applications*, <http://www.ntia.doc.gov/broadbandgrants/applications/results.htm> (NTCH, Inc. has applied for more than \$175 million in grants and loans for EV-DO and LTE upgrades to networks in areas including west and central Tennessee, central Illinois, northwest Alabama, eastern North Carolina, and southwest Idaho; KeyStone Wireless has requested \$39.6 million in grants and loans to construct a 3G wireless network in rural areas of central Pennsylvania; Union Telephone has applied for \$30 million to expand the Union Wireless 3G network in Wyoming; Nex-Tech Wireless has applied for more than \$18 million in grants and loans for 3G EV-DO networks in underserved areas in east Kansas; iPCS has applied for more than \$7 million in grants and loans to expand its 3G network to 13 service areas; Agri-Valley Communications has applied for more than \$31 million in grants and loans to provide LTE services in the northern half of Michigan's lower peninsula, and the eastern half of Michigan's upper peninsula; and MCG PCS has applied for \$14 million to provide wireless broadband in Pennsylvania and western New York).

²²² *See, e.g.,* AT&T News Release, *AT&T To Acquire Divestiture Properties from Verizon Wireless, Enhance Network Coverage and Customer Service* (May 8, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=2680> ("After operations transition to AT&T, the primarily rural subscribers added through this transaction will be able to experience mobile broadband on all the smartphones AT&T offers."); *see also*

For their part, regional carriers that serve rural America likewise offer a range of competitive service plans and a rich array of cutting edge devices.²²³ In many cases, as the Commission has recognized, wireless acquisitions have heightened competition in rural areas by making available to rural consumers “expanded and improved services and features,” “increase[d] broadband deployment and next generation services,” “higher quality service,” and the benefits of “increase[d] efficiency and . . . economies of scale and scope.”²²⁴ Such acquisitions should be encouraged and promptly approved when they have no anticompetitive effects.

To be sure, the economics of providing any type of product or service – including wireless – are more challenging in rural areas, because the lower population density of these areas typically entails higher average delivery costs. In the case of wireless, for example, a cell site or backhaul facility in a rural area will serve fewer customers than a site or facility in an urban area, which translates into higher average costs.²²⁵ But more so than with many other types of products and services, wireless carriers have incentives to provide service in rural areas in order to be able to reduce the cost of providing truly nationwide coverage to their customers.

Thirteenth Report ¶ 105 (“Providers based in rural areas seem to be providing many of the services that nationwide providers do.”).

²²³ See *supra* pp. 71-72.

²²⁴ E.g., Memorandum Opinion and Order and Declaratory Ruling, *Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC for Consent To Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements and Petition for Declaratory Ruling That the Transaction Is Consistent with Section 310(b)(4) of the Communications Act*, 23 FCC Rcd 17444, ¶ 121 (2008); see generally *id.* ¶¶ 119-156. Moreover, the Commission has imposed conditions to address any perceived competitive harms resulting from these transactions.

²²⁵ This explains the strategy of some carriers to “have a network footprint covering only the principal population centers of [its] various markets,” and to rely on roaming agreements to offer broader services. Leap Wireless International Inc., Form 10-Q, at 74 (SEC filed Aug. 7, 2009); see also Leap Wireless International Inc., Form 10-K, at 7 (SEC filed Feb. 27, 2009) (“We generally build out our Cricket network in local population centers of metropolitan communities serving the areas where our customers live, work and play.”); *infra* pp. 89-94 (discussing roaming).

II. THE SPECTRUM AND NON-SPECTRUM INPUTS IN THE MOBILE VALUE CHAIN ARE HIGHLY COMPETITIVE

In addition to seeking information on the retail “edge” markets discussed above, the *NOI* expands the Commission’s inquiry in this proceeding to include “upstream markets for key inputs,” asking how “spectrum” and “non-spectrum” inputs alike “affect overall competition.” *NOI* ¶¶ 9, 23. Here, too, there is no need to depart from the Commission’s traditional approach: As an economic matter, the fact that wireless competition is robust at every level – as demonstrated above – indicates that providers of services in downstream markets are able to obtain access to upstream inputs on reasonable terms.²²⁶ But in any case, here too, the Commission’s broader inquiry will serve only to confirm that all aspects of the wireless “value chain” are highly competitive.

Indeed, as to both spectrum and non-spectrum inputs alike, the facts make clear that the Commission’s core objective should be to encourage competitive supply. As to spectrum, that means taking aggressive steps to ensure that there is sufficient spectrum available to meet the rapidly growing demand for broadband services. The Commission also must preserve incentives to ensure valuable spectrum is developed to its most productive uses, which means giving licensees the flexibility to use their spectrum as they see fit and protecting it from interference. As to non-spectrum inputs, the *NOI* (¶ 26) focuses on wireless backhaul, for which there is significant and growing competition, particularly from intermodal sources such as cable and fixed wireless. To ensure this investment in competitive facilities continues, the Commission must ensure there are strong incentives to invest and therefore must eschew further rate regulation of legacy special access services that historically were used for wireless backhaul. Imposing additional price constraints on special access services will artificially encourage

²²⁶ See Willig Decl. ¶¶ 61-62.

continued reliance on these services at the expense of the higher-capacity competitive facilities that are now being deployed. Finally, the Commission also should resist more intrusive regulation of roaming agreements. The Commission's existing policies preserve incentives for wireless carriers to invest to expand their coverage, while at the same time allowing carriers to obtain roaming agreements in the interim while that investment takes place.

A. The Commission Should Take Aggressive Steps To Make More Spectrum Available Under a Regime That Encourages Its Efficient Use

The amount of licensed spectrum allocated to mobile wireless services in the U.S. has historically lagged behind the amount available in other industrialized countries.²²⁷ The recent 700 MHz auction helped correct this imbalance, bringing the total amount of licensed spectrum in the U.S. up to levels comparable to those in the European Union.²²⁸ Yet the U.S. generally has more wireless carriers competing than in Europe or elsewhere,²²⁹ meaning that, on average, there is less spectrum available to each U.S. carrier in a given market.

At the same time, and as demonstrated above, usage of wireless services in the U.S. far exceeds levels elsewhere.²³⁰ The more than 270 million wireless customers in the U.S. make far more use of their mobile devices – both in terms of voice and data – than their foreign counterparts.²³¹ U.S. wireless carriers have managed the heavy strain on their networks by

²²⁷ For example, as of 2001, European Union regulators had issued mobile licenses allocating an average of 266 MHz per country, which was about fifty percent more than the amount allocated in the U.S. at that point. Thomas W. Hazlett and Roberto E. Munoz, *Spectrum Allocation in Latin America: An Economic Analysis*, 18 Info Econ. & Pol'y __ (2009) (publication pending), available at <http://mason.gmu.edu/~thazlett/pubs/LA.TH.RM.5.5.09.doc>.

²²⁸ See *CTIA Study* at 15.

²²⁹ See Letter from Christopher Guttman-McCabe, CTIA, to Marlene Dortch, FCC, WT Docket No. 09-66, at 2 (Sept. 10, 2009).

²³⁰ See *supra* pp. 30, 34-35.

²³¹ See CTIA CMRS Comments, Attachment A at 9 (findings by Merrill Lynch and others that "U.S. wireless companies provide consumers with more service for their

engineering them to use spectrum as efficiently as possible. U.S. wireless networks serve more customers and carry more traffic than most other industrialized nations, and they do so at speeds that meet or exceed those of most any other country.²³² These networks have thus become some of the most efficient users of mobile wireless spectrum in the world.

Although heavy investment and technical ingenuity have allowed wireless competition and innovation to prosper thus far, rapidly growing demand for bandwidth-intensive wireless services is placing excessive demands on current networks and spectrum. Within the confines of their existing spectrum holdings, wireless carriers are accordingly doing everything they can to support this rising demand. Again, AT&T is deploying 2,000 new cell sites and HSPA 7.2 technology, and has future plans to deploy LTE technology.²³³ Other wireless carriers, as shown above, also are deploying additional cell sites and next-generation wireless technologies. And still others are resorting to using spectrum originally allocated for other uses to offer mobile broadband.²³⁴

As this investment demonstrates, the principal concern today is not that spectrum is being underutilized (*see NOI* ¶ 24), but precisely the opposite. Independent studies show that, even before the recent rise in the growth in broadband data, commercial wireless spectrum was being

telecommunication dollar, while maintaining the most spectrally efficient networks in the world.”).

²³² *See OECD Communications Outlook 2009*, at 91, Table 3.8 & 132, Table 4.11 (the U.S. carried 443 minutes per mobile subscriber per month and served 263 million mobile subscribers in 2007, more than any other OECD country); *see also* Christopher Guttman-McCabe, CTIA, *Debunking the Myth on 3G Speeds in the U.S.* (Sept. 15, 2009), <http://www.ctia.org/blog/index.cfm/2009/9/15/Debunking-the-Myth-on-3G-Speeds-in-the-US>.

²³³ *See* AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835>; *supra* p. 16.

²³⁴ Clearwire, for example, “operate[s] primarily on spectrum located within the . . . 2.5 GHz band, which is designated for Broadband Radio Service, . . . and Educational Broadband Service.” Clearwire Corp., Form 10-K, at 16 (SEC filed Mar. 25, 2009).

heavily utilized.²³⁵ To achieve greater spectral efficiency, mobile operators have invested enormous sums to rapidly and continually upgrade their networks over the past decade – from TDMA to GSM to EDGE to HSPA to LTE and from 1xRTT to EV-DO to LTE – to achieve greater spectral efficiency.²³⁶ LTE, for example, is twice as spectrally efficient as previous generation technologies such as EV-DO and UMTS/HSPA.²³⁷ By contrast, studies also show that the least utilized bands are the unlicensed bands.²³⁸ Service providers in these bands do not have incentives to use the most spectrally efficient technology or to minimize interference, creating concerns about a “tragedy of the anti-commons” that has deterred investment.²³⁹

²³⁵ See, e.g., John T. MacDonald, *A Survey of Spectrum Utilization in Chicago* 6-7 (Mar. 7, 2007), <http://www.ece.iit.edu/~wemi/publications/spectrum.pdf> (For the 1850-1900 MHz band used for PCS: “In the utilization statistic, it appears as if the down-link side is fully occupied and the up-link side is not occupied. This cannot be the case because duplex telephone channels listen as often as they talk, so the utilization should be the same on both the up-link and down-link side. Because cellular phone service providers try to maximize their frequency utilization in order to maximize their revenues, the obvious conclusion is that this band has a nearly 100% utilization, yet the occupancy figure measures in at only 35%.”).

²³⁶ See Hazlett Decl. ¶ 34; Mike McCormack et al., Bear Stearns, *A Monthly Update on Critical Broadband Issues*, at 2, Exhibit 1 (Feb. 4, 2008) (describing the GSM and CDMA evolution paths); Craig Moffett et al., BernsteinResearch, *U.S. Telecom: Countdown to U.S. Wireless Market Saturation; How Much Risk in a Recession?*, at 24, Exhibit 45 (Nov. 19, 2007) (showing the timeline of network upgrades).

²³⁷ See Rysavy Research, *Mobile Broadband Spectrum Demand*, at 14, Table 2 (Dec. 2008) (Spectral efficiency of LTE is 1.5 bps/Hz, compared to 0.75 for EV-DO and UMTS/HSPA).

²³⁸ See Hazlett Decl. ¶¶ 36-38 & Fig. 3.

²³⁹ Hazlett Decl. ¶ 41 & n.42 (internal quotation marks omitted); see also Forward by Professor William Webb, FIEEE, Head of Research and Development, Ofcom, to Rysavy Research, *Mobile Broadband Spectrum Demand* at 4 (Dec. 2008) (“[S]pectrum in the frequency bands below around 4-5 GHz (with important exceptions) is generally more valuable used in a licensed application rather than license-exempt or ‘spectrum commons.’ Research in the UK has shown that licensed applications such as cellular and broadcasting generate far more value to the economy than commons usage – in the case of the UK only 1% of the total value from the use of spectrum was generated by commons usage such as Wi-Fi. . . . Since most commons usage is short range it therefore makes sense to place it above the frequencies that are readily usable for cellular and broadcasting. However, bands such as at 2.4 GHz are an exception to this because they would be of limited use to cellular due to the interference already occurring in the band.”).

Although market forces require commercial wireless carriers to use the most efficient technology in their networks and to maximize the use of their spectrum to provide the highest quality service to the largest possible number of users,²⁴⁰ there are real and practical technical limits to how much network capacity can be created in any given spectrum band while at the same time ensuring the same high-degree of service to which customers have become accustomed and that is necessary for providers to remain competitive in the marketplace.²⁴¹ In order to satisfy the ever increasing array of bandwidth-intensive mobile wireless services and the rapid rise in the number of consumers using these services, mobile wireless carriers will need significant additional spectrum going forward.²⁴² For example, the International Telecommunications Union has conducted a highly detailed analysis of spectrum needs for advanced wireless services such as LTE and projects total spectrum requirements for the U.S. of as much as 840 MHz by 2010, 1300 MHz by 2015, and 1720 MHz by the year 2020.²⁴³ By comparison, following the recent AWS and 700 MHz auctions, about 360 MHz²⁴⁴ has been

²⁴⁰ See Hazlett Decl. ¶¶ 8-24; Gerald R. Faulhaber & David J. Farber, *Innovation in the Wireless Ecosystem: A Customer-Centric Framework*, at 8-12 (FCC filed Sept. 30, 2009) (“Faulhaber/Farber”) (attached to *AT&T Wireless Innovation NOI Comments*).

²⁴¹ See, e.g., Faulhaber/Farber at 12-15.

²⁴² AT&T’s companion comments in response to the *Wireless Innovation NOI* provide further details on how the Commission may repurpose spectrum for mobile wireless services given the fact that much of the radio spectrum resources has already been allocated.

²⁴³ See International Telecommunication Union, *Report ITU-R M.2078: Estimated Spectrum Bandwidth Requirements for the Future Development of IMT-2000 and IMT-Advanced*, at 25, Table 25 (2006).

²⁴⁴ See Blair Levin et al., Stifel, Nicolaus & Co., *What 700 MHz Winners Can Do with Their Spectrum*, at 4 (Apr. 15, 2008); Rysavy Research, *Mobile Broadband Spectrum Demand* at 23 & n.49 (Dec. 2008) (354 MHz allocated for CMRS, comprising the cellular, broadband PCS, SMR, AWS-1, and 700 MHz bands).

allocated for commercial mobile services in the U.S. (and approximately 680 MHz²⁴⁵ for all mobile services), which in both cases is well short of the spectrum needed to satisfy projected demand.²⁴⁶

As the *NOI* recognizes, making additional spectrum available is particularly critical to facilitating the deployment of “next generation/4G network technologies such as WiMax and Long Term Evolution (LTE).” *NOI* ¶ 24. In order to migrate to LTE on a broad scale, wireless companies will need a “wide band of clean spectrum.”²⁴⁷ Wireless carriers including Verizon and AT&T accordingly plan to use their recently acquired 700 MHz spectrum to deploy LTE.²⁴⁸ But it is widely understood that significant additional spectrum will be required to provide true wireless broadband services nationwide. As Motorola has noted, for example, “[i]t is clear that existing bands will not be enough for IMT [International Mobile Telecommunications, the ITU

²⁴⁵ See Rysavy Research, *Mobile Broadband Spectrum Demand* at 23-24 & n.50 (Dec. 2008) (680 MHz includes “50 MHz of cellular spectrum, 24 MHz in the SMR bands, 120 MHz of broadband PCS, 90 MHz in the AWS-1 band, 70 MHz in the 700 MHz bands, 195 MHz in the BRS and EBS bands, and 132.425 MHz of MSS ATC spectrum.”).

²⁴⁶ See Faulhaber/Faber at 22; see also Rysavy Research, *Mobile Broadband Spectrum Demand* at 3 (Dec. 2008) (“Ericsson . . . indicates data traffic is already three times the voice traffic on some UMTS networks they have measured within the last twelve months. A leading national wireless broadband provider predicts that by 2018, 3G/4G mobile data traffic will expand by a factor of 250 (conservative estimate) to 600 (aggressive estimate). In contrast, mobile voice traffic is expected to ‘only’ triple in that same period.”).

²⁴⁷ Blair Levin et al., Stifel, Nicolaus & Co., *What 700 MHz Winners Can Do with Their Spectrum* at 3 (Apr. 15, 2008) (“Because LTE is an OFDM (orthogonal frequency-division multiplexing) system, the transition is different than previous Verizon/AT&T transitions. When they went from 1xRTT to EVDO or from TDMA to GSM to Edge, they had base stations that used some spectrum on the older technology and some on the new. With LTE, the companies can’t gradually migrate spectrum and users to the new standard as 4G equipment supply and service demand ramp up. Instead, they need a wide band of clean spectrum to build complete systems from scratch.”).

²⁴⁸ See, e.g., Simon Flannery et al., Morgan Stanley, *Telecom Services: 1Q Trend Tracker: Earnings Resilience Supports Outperformance Potential*, at 3 (June 5, 2009); Walter Piecyk & Joseph Galone, Pali Research, *Verizon Communications: Initiating Coverage with a Buy Rating and a \$39 Target*, at 11 (June 17, 2009).

standard for 3G and 4G technologies including LTE] services approximately after the year 2015 and additional bands are needed. In order to deliver a true broadband experience, large blocks of spectrum will need to be identified and allocated.”²⁴⁹ Indeed, Clearwire’s Chief Technology Officer has claimed that Clearwire’s decision to use WiMax instead of LTE will give it a competitive advantage over traditional wireless carriers because it “‘believe[s] the LTE operators will be hard-pressed to find the spectrum to build a nationwide broadband network.’”²⁵⁰

In evaluating spectrum, both from the perspective of making new spectrum available and in terms of the Commission’s competitive analysis, it is important to recognize that a wide variety of bands can be used to support mobile wireless services. Today, for example, mobile wireless services are being provided on the following bands from 700 MHz to 2.5 GHz: 700 MHz, 800 MHz (cellular), 1.9 GHz (PCS and SMR), 1.7/2.1 GHz (AWS), 2.5 GHz (WiMAX), 2.6 GHz (BRS). New broadband technologies such as LTE likewise can operate on both low and high frequencies, from 450 MHz to 3.5 GHz (and potentially higher).²⁵¹ Moreover, just as technology has permitted higher and higher frequencies to be used in the past, the amount of usable spectrum will continue to increase going forward as engineers push radio frequencies up

²⁴⁹ Motorola, White Paper: Spectrum Analysis for Future LTE Deployments, at 5 (2007), http://www.motorola.com/staticfiles/Business/Solutions/Industry%20Solutions/Service%20Providers/Wireless%20Operators/LTE/_Document/Static%20Files/LTE_Spectrum_Analysis_White_Paper_New.pdf (“ITU (ITU-R M.2078) projects overall spectrum requirements for the future development of IMT-2000 and for IMT-Advanced. The results assert that additional spectrum demand of between 500 MHz and 1 GHz will be needed in all ITU regions by 2020.”).

²⁵⁰ Unstrung.com, *Clearwire: We’re Ready for Primetime* (June 12, 2008) (quoting Clearwire CTO John Saw), http://www.unstrung.com/document.asp?doc_id=156240.

²⁵¹ See, e.g., Deepak Dasalukunte, Department of Electrical and Information Technology, *3G Evolution – HSPA and LTE for Mobile Broadband; Chap. 14, LTE Radio Access: An Overview* (Apr. 29, 2009), <http://www.eit.lth.se/fileadmin/eit/courses/phd003/Slides/Ch14.pdf>. MSS/ATC spectrum and 3650 (non-exclusive nationwide licenses) may support terrestrial mobile wireless services in the future.

into higher bands, and radio costs down.²⁵² It therefore would be a mistake to adopt 1 GHz as a demarcation point in “distinguish[ing] the competitive effects of different spectrum bands,” as the *NOI* proposes. *NOI* ¶ 24. Carriers are capable of and already are using bands well above 1 GHz to provide the full range of wireless services that consumers demand, and that will continue to be true going forward.

The *NOI* (¶ 25) correctly recognizes, however, that different frequency bands have different propagation characteristics, which may “translate into capital and operating cost differences.” Lower frequencies generally have broader propagation, which in theory may permit a radio system to be deployed over the same area with fewer cells than with higher frequency spectrum. But as one wireless engineer has explained, “it cannot be assumed that any radio system operating in a lower frequency band will require fewer cells or be more economical to deploy and operate than another radio system operating in a higher frequency band,” because other factors – such as the presence of large buildings or other physical impediments – also affect propagation.²⁵³ Thus, “in urban areas that are capacity-limited, there is likely to be little to no difference in the number of cells required at 700 MHz vs. 2.5 GHz.”²⁵⁴ Because the

²⁵² See, e.g., Ray Horak, *Telecommunications and Data Communications Handbook* at 64 (2007) (“While there is no additional radio spectrum being manufactured these days, technology has continued to develop to the point that some WLL systems run effectively in the range of 38 GHz. Technology certainly will continue to develop and usable spectrum certainly will continue to increase, but it is important to remember that radio spectrum will always be limited.”).

²⁵³ Joanne C. Wilson, *Understanding Spectrum Issues in the Deployment of Broadband Wireless Access Networks*, Presentation to the Meeting of the South Carolina Senate Broadband and Telecommunications Technology Study Committee, at 18 (Dec. 12, 2007), available at <http://www.scstatehouse.gov/citizensinterestpage/BroadbandTechnology&CommunicationStudyComm/commentsandpresentations/JoanneWilsonPresentation.pdf>.

²⁵⁴ *Id.*; see also Blair Levin et al., Stifel, Nicolaus & Co., *What 700 MHz Winners Can Do with Their Spectrum* at 5 (Apr. 15, 2008) (“700 MHz requires a third to a half of the base stations compared to 2.5 GHz. The differences blur in urban areas because one trades capacity for range. 700 MHz’s big physical advantage is in rural areas, but that’s not where the first

interrelationship of factors that affect the degree of spectral efficiency are extremely complex, it is critical that the Commission allow market forces to engineer the correct mix. By the same token, the Commission must consider a wide range of spectrum bands in its competitive analysis, rather than drawing an arbitrary demarcation point.

B. The Commission Should Encourage the Competitive Supply of Backhaul

The *NOI* (¶ 26) asks how “the structure of the market for backhaul services affect[s] overall competition” for wireless services. As discussed below, and as Professor Willig explains, the intense competition for mobile wireless services at every level of the value chain is powerful economic evidence that the structure of the market for backhaul services is in no way impeding wireless competition or investment, both of which are robust and increasing.²⁵⁵ That should come as no surprise because, as AT&T has elsewhere shown repeatedly, there is significant and growing competition for wireless backhaul services. Moreover, going forward, competition will only further intensify because the exploding demand for backhaul capacity, resulting from the rapid growth of bandwidth-intensive wireless services, is attracting competitors of every stripe who are investing in our nation’s infrastructure, replacing legacy backhaul facilities (such as DS1 and DS3 services) with fiber and microwave connections.

First, as a threshold matter, the robust competition in retail wireless service detailed above is itself sufficient to demonstrate effective competition for wireless backhaul. As Professor Willig explains, effective competition downstream is itself an indicator of effective competition upstream.²⁵⁶ As explained in detail above, the wireless industry demonstrates all of

build-out occurs. The 700 MHz advantage indoor is less than often thought because while 700 MHz penetrates walls better, 2.5 GHz uses windows better.”).

²⁵⁵ See Willig Decl. ¶ 76.

²⁵⁶ See Willig Decl. ¶¶ 10, 61-62.

the hallmarks of effective competition, including declining price, expanding output, and robust investment. That evidence alone should dispel any concern that Commission intervention is warranted in this link in the mobile value chain.

Indeed, both the D.C. Circuit and this Commission have already embraced that view. In *USTA II*,²⁵⁷ the D.C. Circuit found that data “clearly show that wireless carriers’ reliance on special access has not posed a barrier that makes entry uneconomic.”²⁵⁸ The court of appeals also found that “market evidence . . . demonstrates that existing rates . . . don’t impede competition” in the wireless marketplace.²⁵⁹ On remand from *USTA II*, this Commission agreed that non-incumbent wireless providers had competed successfully using special access services purchased from incumbents and that the wireless market was “competitive,” and it therefore categorically excluded the use of unbundled network elements by wireless providers.²⁶⁰

Additional evidence confirms effective competition for wireless backhaul. Indeed, the actions and statements of wireless providers themselves – including the most outspoken proponents of special access regulation – confirm as much. For example, T-Mobile has stated that it “has invested over \$7 billion thus far” to build out its 3G network, that in 2009 it “plans to double the population currently covered by its high-speed network to reach more than 200 million people in the U.S.,” and that it is “also planning next-generation mobile broadband services and is actively considering advanced technologies such as ‘HSPA Plus’ (‘HSPA+’) and

²⁵⁷ *USTA v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) (“*USTA II*”).

²⁵⁸ *Id.* at 575.

²⁵⁹ *Id.* at 576.

²⁶⁰ Order on Remand, *Unbundled Access to Network Elements; Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 20 FCC Rcd 2533, ¶ 36 & n.106 (2005), *aff’d*, *Covad Communications Co. v. FCC*, 450 F.3d 528 (D.C. Cir. 2006).

Long Term Evolution ('LTE')."²⁶¹ Sprint has noted its "\$7.4 billion investment in Clearwire Corp., [which] is proceeding aggressively with its deployment of 4G WiMax technology" that will be made available "to as many as 120 million people."²⁶² As Professor Willig explains, these levels of past and future investment in wireless networks reflect a confidence that any inputs to these networks can be obtained on reasonable terms.²⁶³

Beyond that, wireless providers have acknowledged that they have plentiful competitive alternatives for backhaul. For example, T-Mobile testified that "competitive forces work in metro areas where there's lots of fiber, be that from the utility company, from the cable company, from the existing, you know, telco provider. So, I think market forces are starting to work there."²⁶⁴ T-Mobile went on to note that in rural areas, "there are good microwave solutions, . . . and some carriers are totally deploying their back haul solutions on a microwave basis."²⁶⁵ As noted, Sprint has likewise stated that, with respect to its Clearwire WiMax network, it "will use self-provisioned microwave backhaul to handle the high-bandwidth

²⁶¹ Comments of T-Mobile USA, Inc., *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 2, 3 (FCC filed June 8, 2009); *see also* Reply Comments of T-Mobile USA, Inc., at 1, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, WT Docket No. 09-66 (FCC filed July 13, 2009) ("[C]ompetition in the CMRS retail marketplace is flourishing. Wireless carriers like T-Mobile continue to introduce new and innovative services, technologies, and pricing options that benefit consumers.").

²⁶² Comments of Sprint Nextel Corp., *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 5 (FCC filed Sept. 4, 2009) (footnote omitted) ("Sprint Comments in GN Docket No. 09-51"); *see also* Comments of Sprint Nextel Corporation, at 5, *Petition of Rural Cellular Association for Rulemaking Regarding Exclusivity Arrangements Between Commercial Wireless Carriers and Handset Manufacturers*, RM-11497, DA 08-2278 (FCC filed Feb. 2, 2009) (wireless marketplace is "competitive and producing innovation that benefits the public").

²⁶³ *See* Willig Decl. ¶¶ 61, 76-77.

²⁶⁴ Wireless Broadband Hearing, Tr. at 45-46 (T-Mobile USA Senior Vice President Engineering, Neville Ray).

²⁶⁵ *Id.* at 46.

requirements associated with 4G applications to the maximum extent possible.”²⁶⁶ In a recent presentation touting the benefits of that approach, Clearwire emphasized that “90% of Clearwire cell sites use microwave backhaul.”²⁶⁷ Stelera Wireless – which provides wireless broadband in rural areas using AWS spectrum and HSPA technology – has stated that “[w]e don’t have a problem with back haul because we’re using 300 MIP microwave off of those cell sites, so I’ve got plenty of back haul capacity to go back. So there’s no issue there.”²⁶⁸

Absent Commission action that stifles this competition, it will only intensify further going forward. There is widespread agreement that rapidly rising demand for wireless broadband is driving wireless carriers from primarily copper-based backhaul services to new connections using fiber and fixed wireless technologies.²⁶⁹ Cable companies and fixed wireless providers have both acknowledged that this creates significant new opportunities for them.²⁷⁰ T-

²⁶⁶ Sprint Comments in GN Docket No. 09-51, at 5; *see also* Yankee Group, *4G Network Backhaul Summit*, at 14 (Sept. 15, 2009) (presentation of John Saw, CTO, Clearwire) (“90% of Clearwire cell sites use microwave backhaul,” and there is “[t]remendous scalability,” with “50 Mbps – 1 Gbps of backhaul capacity per site”).

²⁶⁷ Yankee Group, *4G Network Backhaul Summit*, at 14 (Sept. 15, 2009) (presentation of John Saw, CTO, Clearwire).

²⁶⁸ Wireless Broadband Hearing, Tr. at 42-43 (Stelera Wireless founder and CEO Ed Evans).

²⁶⁹ *See, e.g., id.* at 37 (Stelera Wireless founder and CEO Ed Evans: “[W]e aggregate through microwave back to a single long-haul Ethernet connection”); *id.* at 46 (Bechtel Telecommunications principal vice president and CTO Jake MacLeod: “Obviously, a lot of the carriers now are moving to Ethernet, and wireless is definitely a solution”).

²⁷⁰ *See, e.g.,* FCC National Broadband Plan Workshop, Deployment – Wired (Aug. 12, 2009), Tr. at 35 (Dallas Clement, EVP and Chief Strategy and Product Officer, Cox Communications: “Relative to wireless backhaul from cell sites . . . I’ll tell you that in our commercial business it’s a growth area. We’re getting calls in our franchises from wireless providers who are preparing for their 4G networks and they’re looking for lower cost alternatives for back haul. And because we’re there and we can do sort of spurs off our network, we feel as though it’s a big growth area and we’re deploying capital to that area to be able to satisfy that demand.”), http://www.broadband.gov/docs/ws_02_deploy_wired_transcript.pdf; *Q4 2008 Clearwire Corporation Earnings Conference Call – Final*, FD (Fair Disclosure) Wire, Transcript 030509a2078472.772 (Mar. 5, 2009) (Clearwire Corp. COO Perry Satterlee noted the company’s

Mobile has testified that, looking at its “3G footprint today, we are certainly moving to, you know, a fiber backhaul solution environment.”²⁷¹ One analyst projected that the U.S. backhaul services market will expand from approximately \$3 billion annually today to \$8 billion to \$10 billion in the next two-to-four years.²⁷² The Yankee Group projects that wireless backhaul capacity requirements will increase 28-fold between 2008 and 2012.²⁷³ Competitors plainly will have enormous opportunities to supply this growing segment.

Indeed, competitive providers have acknowledged that they are making major investments to compete in the supply of wireless backhaul. For example, Cox has stated that “the network that we’re building today is all IP-connected to every cell site that we’re deploying, and within the market that we’re building, we’re essentially connecting most of the cell sites with fiber, but there are the odd exception even with our infrastructure where we would use microwave to pick up a couple of the cell sites.”²⁷⁴ Fiber Tower has claimed that it “operates a 100 percent facilities-based communications network using fiber optic and wireless assets” that “spans more than 6,000 base stations in 13 United States markets” and that “the top eight mobile

“pioneering use of almost exclusively microwave backhaul” and “negligible” operating costs); Tower Cloud, *Overview*, <http://www.towercloud.com/company.shtml> (“With the roll-out of 3G and 4G wireless as well as the escalation in widespread adoption of mobile data services, . . . there is an urgent need to upgrade . . . backhaul networks. Tower Cloud specializes in solving these network challenges to enable wireless operators to raise the business performance and quality of their networks while reducing unit costs.”).

²⁷¹ Wireless Broadband Hearing, Tr. at 45 (T-Mobile USA Senior Vice President Engineering, Neville Ray).

²⁷² See Frank Louthan et al., Raymond James & Associates, *Examining the Convergence of the Telecom and Cable Sectors*, at 16 (Aug. 18, 2008).

²⁷³ See Jennifer Pigg, Yankee Group, *Mobile Backhaul: Will the Levees Hold?*, at 3 (June 2009) (“Yankee Group forecasts that mobile traffic will have a CAGR of 130 percent from 2008 through 2012 – that is, 1 MB of traffic in 2008 will equal 28 MB of traffic in 2012.”).

²⁷⁴ Wireless Broadband Hearing, Tr. at 49 (Cox VP of Wireless Stephen Bye).

carriers” are “among FiberTower’s largest customers.”²⁷⁵ As detailed in other filings, every major cable operator (Comcast, Cablevision, Time Warner, and Cox), at least six fixed wireless providers, and at least a dozen other competitive suppliers are all aggressively targeting wireless backhaul opportunities in areas throughout the country.²⁷⁶

Given this broad and rapidly increasing competition and the widely acknowledged need for more investment in high capacity backhaul infrastructure, it would be a mistake of the highest order for the Commission to impose further regulation on special access services. Artificially reducing ILEC special access rates would minimize the incentive for any company to expand its networks, by reducing the returns that either incumbents or new entrants could expect from continuing the deployment of next-generation infrastructure. As Sprint’s own Chief Technology Officer has acknowledged, the only reason alternative high-capacity technologies such as fixed wireless are not already as prevalent in the United States as in the rest of the world is that “relatively abundant and inexpensive T-1 lines have stifled the technology here.”²⁷⁷ Ericsson has

²⁷⁵ Comments of FiberTower Corp., *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 3 (FCC filed June 8, 2009); *see also* Ravi Potharlanka, COO, FiberTower Corp., *Written Testimony before the House Energy and Commerce Committee, Subcommittee on Communications, Technology, and the Internet, Hearing on Competition in the Wireless Industry*, at 3, 4 (May 7, 2009), http://energycommerce.house.gov/Press_111/20090507/testimony_potharlanka.pdf (FiberTower COO Ravi Potharlanka: “We offer our services to mobile wireless carriers, competitive and local exchange carriers, 1st responder networks, and to government and enterprise customers. Our network currently covers approximately 12,000 route miles with 7,000 miles covered using fixed wireless and another 5,000 miles using dark fiber. Through our partnership and master lease agreements we have the ability to access over 100,000 towers nationwide. . . . We have customer agreements with the eight largest U.S. wireless carriers.”).

²⁷⁶ Patrick Brogan & Evan Leo, *High-Capacity Services: Abundant, Affordable, and Evolving*, at 34-38 (July 2009), *attached to* Letter from Glenn Reynolds, USTelecom, to Marlene Dortch, FCC, WC Docket No. 05-25, GN Docket No. 09-51 (FCC filed July 16, 2009).

²⁷⁷ Stephen Lawson, *Sprint Picks Wireless Backhaul for WiMAX*, Industry Standard (July 9, 2008), <http://www.thestandard.com/news/2008/07/09/sprint-picks-wireless-backhaul-wimax> (citing Sprint CTO Barry West).

likewise stated that “[i]n the U.S. the ability to lease T1s has retarded microwave; it’s always been less expensive to lease T1s.”²⁷⁸

The Commission should take these comments to heart. Particularly in these economic times, the Commission’s core mission should be to eliminate barriers to competitive supply and the investment that goes along with it. In this context, that means ensuring that competitive providers have an incentive to act on the enormous opportunities to supply the wireless backhaul that will be necessary to support providers’ next-generation networks and consumers’ ever-increasing appetite for wireless broadband.

C. The Current Roaming Framework Facilitates Effective Competition

Because no wireless carrier has facilities covering the entire U.S., carriers enter into roaming agreements with each other to fill in gaps in their networks. The *NOI* seeks “information on how [the Commission] should analyze the market from the perspective [of] market segments that include . . . roaming,” and it then invites “general comment on the proper treatment of roaming services.” *NOI* ¶¶ 20-22. The ordering of the Commission’s questions is precisely right, as the response to the first question – *i.e.*, that market segments that rely on roaming are thriving – leads ineluctably to the response to the second – *i.e.*, that the Commission should not expand automatic roaming requirements.

First, the current roaming framework is sufficient to facilitate competition. The FCC historically has not regulated roaming, but, rather, has relied on carrier’s mutual interdependence to ensure reasonable commercial terms.²⁷⁹ The Commission has now created a § 208 complaint

²⁷⁸ Anne Morris, *Microwave To Retain Key Role in Wireless Backhaul, As Fibre Waits in Wings*, Total Telecom (Sept. 2, 2009) (quoting Don McCullough, Ericsson).

²⁷⁹ See, e.g., *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 15817, ¶ 13 (2007) (“*Automatic Roaming Order*”).

option for carriers claiming unreasonable roaming rates,²⁸⁰ but regulation of those rates remains as unnecessary now as it ever was. As explained above, the industry as a whole is thriving, and indeed some of the very providers that claim to rely most heavily on roaming – in particular, regional and smaller providers – are growing faster than any other carriers.²⁸¹ Carriers of all sizes are investing in the deployment of next-generation networks, moreover, and the bulk of them offer nationwide, flat-rate calling plans.²⁸² To be sure, AT&T now serves with its own facilities many areas in which it previously relied on roaming, but AT&T remains a net payor of roaming fees: in the first six months of 2009, AT&T paid more than 40 percent more in roaming expenses than it collected from other carriers. AT&T thus plainly retains every incentive to enter into fair and reasonable roaming arrangements.

Not only is the roaming framework in place today sufficient, but extension of that framework would adversely affect competition and investment. Thus, for example, some have proposed extending automatic roaming mandates to areas in which the requesting carrier holds its own spectrum. Such a mandate, however, would diminish investment incentives for the requesting carrier and providing carrier alike. A requesting carrier that can demand automatic

²⁸⁰ See *id.* ¶¶ 30-32.

²⁸¹ See *supra* pp. 26-28 (discussing, *e.g.*, Leap, MetroPCS, and Cellular South). In addition, MVNOs such as TracFone and Virgin Mobile rely heavily on roaming. The former serves more than 10 million prepaid subscribers; the latter serves 5 million prepaid subscribers. See TracFone Wireless, *About Us*, <http://www.tracfone.com/about.jsp?nextPage=about.jsp&task=about>; Virgin Mobile News Release, *Virgin Mobile USA Reports \$98 Million in Adjusted EBITDA Excluding Transition and Restructuring Expenses(1) for the First Six Months of 2009* (Aug. 10, 2009), http://virginmobileusa.marketwire.com/easyir/customrel.do?easyirid=13135DE328B72AB2&version=live&prid=526072&releasejsp=custom_124.

²⁸² See, *e.g.*, U.S. Cellular, *Plans: National Plans*, http://www.uscc.com/uscellular/SilverStream/Pages/b_plan.html?zip=60411&mkt=608830&tm=1&tabPlan=2 (zip code 60411); Cincinnati Bell, *Wireless Rate Plans: What's Included*, http://www.cincinnati-bell.com/consumer/wireless/rate_plans/popup_900_premium.asp; nTelos Wireless, *Plans: nTelos Nation Plans*, <http://www.nteloswireless.com/plans/nation/>.

roaming throughout the area in which it already has spectrum will plainly have less incentive to make full use of its spectrum and to build out its own network.²⁸³ At the same time, from the perspective of the providing carrier, a major source of competition today is network coverage.²⁸⁴ Extension of automatic roaming would effectively eliminate the providing carrier's ability to compete on coverage and thus diminish its investment to build out as well. As the Commission has explained, "if a carrier is allowed to 'piggy back' on the network coverage of a competing carrier in the same market, then both carriers lose the incentive to build-out into high cost areas in order to achieve superior network coverage."²⁸⁵ Consumers, in turn, would be "disadvantaged by a lack of product differentiation, lower network quality, reliability and coverage."²⁸⁶

For many of the same reasons, the extension of automatic roaming requirements to wireless services that are not interconnected with the PSTN would also be bad policy. For one thing, history has shown that voluntary negotiations will produce efficient roaming agreements, and there is no evidence of market failure in the data context that would suggest a different result here. Indeed, AT&T already has reciprocal roaming agreements for 2G data services. AT&T anticipates that similar reciprocal agreements will be reached as more carriers deploy 3G and ultimately 4G networks.

Such reciprocal, mutually beneficial, efficient roaming arrangements are a far cry, however, from the mandatory data roaming obligations some parties propose. Those proposals

²⁸³ See Willig Decl. ¶¶ 84-88.

²⁸⁴ See *Eleventh Report* ¶ 133.

²⁸⁵ *Automatic Roaming Order* ¶ 49.

²⁸⁶ *Id.* Leap Wireless's strategy, for example, is to have "a network footprint covering only the principal population centers of [its] various markets," yet it "provide[s] [its] customers with unlimited usage in areas stretching from New York to California and from Wisconsin to Texas," through roaming arrangements. Leap Wireless International Inc., Form 10-K, at 4, 74 (SEC filed Feb. 27, 2009).

would permit carriers that have not deployed 3G (or 4G networks) – and who accordingly have not undertaken the network-based investment that would permit them to differentiate their services on that basis – to piggyback on the investments of others. Such a regime would undoubtedly diminish investment: carriers with easy access to data resale would have less incentive to invest in broadband infrastructure and network upgrades, as would larger carriers whose ability to differentiate their service on the basis of such upgrades would be compromised. As the D.C. Circuit observed, “[i]f parties who have not shared the risks are able to come in as equal partners on the successes, and avoid payment for the losers, the incentive to invest plainly declines.”²⁸⁷

Mandatory data roaming could also place undue strain on the providing carriers’ networks. The explosion of competition in the device and application segments of the marketplace detailed above has led to an explosion of wireless data traffic. As a result, data networks are under stress, and carriers such as AT&T are investing billions in order to increase bandwidth, upgrade infrastructure, and acquire additional spectrum. AT&T and other carriers are making these multi-billion-dollar expenditures to enable them to compete for and retain their *own* customers; creating additional, significant bandwidth demands on these carriers through an automatic data roaming requirement would further burden carriers’ networks with the data traffic of *other carriers’* customers, which in turn would threaten service quality for the providing carriers’ own customers. Mandatory data-roaming, in short, would not only permit free-riding

²⁸⁷ *USTA v. FCC*, 290 F.3d 415, 424 (D.C. Cir. 2002); *see also* G. Rosston and M. Topper, *An Antitrust Analysis of the Case for Wireless Network Neutrality*, at 29-30 (Aug. 2009) (explaining that “rules designed to promote competition from wireless resellers led to substantially higher prices,” because “resellers pushed for higher [wholesale] prices” that would, as a result of their mandated “percentage markup,” “increase[] their profit margins”).

and thereby undermine investment, it would also distort the competitive process by forcing carriers' to devote capacity to other carriers rather than to the needs of their own customers.

The Commission's recent announcement that it intends to impose net neutrality requirements on wireless networks also raises serious questions about how any data roaming requirements could be squared with network management necessities. The imposition of net neutrality on wireless networks would strip those networks of some of the tools they could otherwise use to manage limited bandwidth. If the Commission simultaneously requires carriers to make available their limited capacity to other networks, traffic congestion problems could be greatly exacerbated. The uncertainty over whether network managers would be punished for using network management tools later deemed "unreasonable" would be compounded by the uncertainty surrounding whether any remaining network management tools could be used to manage roaming traffic. For example, if, as the Commission posits in the *Comcast Order*,²⁸⁸ carriers implemented tiered pricing in order to suppress usage, how would a carrier apply such tiers to the customers of other carriers? What incentive would those customers have to limit usage? Similarly, if a carrier decided to limit bandwidth during periods of congestion based on bandwidth usage by the customer over some recent time period,²⁸⁹ it may be impossible, as a practical matter, to apply that policy to roamers. Those roaming customers would thus effectively receive preferential treatment over a carrier's own customers even as they create congestion that degrades the service experienced by others. Conversely, the imposition of mandatory data roaming could prove troublesome to carriers that have not expanded capacity sufficiently to accommodate the additional congestion posed by, for example, iPhone users.

²⁸⁸ See Memorandum Opinion and Order, *Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications*, 23 FCC Rcd 13028, ¶ 49 (2008) ("*Comcast Order*").

²⁸⁹ See *id.*

These considerations – along with the fact that roaming options should increase as carriers that currently use disparate technologies deploy LTE – underscore that consideration of data roaming at this point is, at best, premature and should be delayed until next-generation networks are more fully built out.²⁹⁰

CONCLUSION

The Commission should conclude that there is effective competition throughout the mobile “value chain.”

Respectfully submitted,

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September 30, 2009

²⁹⁰ AT&T has elsewhere explained that, in all events, the Commission lacks authority to impose mandatory automatic roaming requirements on non-interconnected services. *See* Comments of AT&T Inc., *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, WT Docket No. 05-265, at 14-16 (FCC filed Oct. 29, 2007).

ATTACHMENT:

Declaration of Robert D. Willig

WT Docket No. 09-66

September 30, 2009

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

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In the Matter of)	
)	
Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993)	
)	WT Docket No. 09-66
Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services)	
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DECLARATION OF ROBERT D. WILLIG

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DECLARATION OF ROBERT D. WILLIG

I. QUALIFICATIONS

1. My name is Robert D. Willig. I am a Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University. Previously, I was a Supervisor in the Economics Research Department of Bell Laboratories. My teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. From 1989 to 1991, I served as Chief Economist in the Antitrust Division of the U.S. Department of Justice, where I led the development of the 1992 Merger Guidelines. I am the author of Welfare Analysis of Policies Affecting Prices and Products, Contestable Markets and the Theory of Industry Structure (with William Baumol and John Panzar), and numerous articles and I have served on the editorial boards of The American Economic Review, The Journal of Industrial Economics and the MIT Press Series on regulation. I have served as a consultant and advisor for the Federal Trade Commission and the Department of

Justice, for OECD, the Inter-American Development Bank, and the World Bank, and for governments of many nations.

II. Introduction and Executive Summary

A. Introduction

2. In conjunction with the preparation of its *Fourteenth Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Radio Services*, the Federal Communications Commission (Commission) recently sought comment on the analytical framework, market factors, and data that would best facilitate the Commission's assessment of competition and consumer welfare in the wireless industry.¹ This Notice of Inquiry (NOI) follows an earlier Public Notice that similarly requested comment on the Commission's examination of competition among providers of commercial mobile radio services (CMRS), as well as comment on the data and information that would support the Commission's analysis.²

3. A key difference between the two documents is that the *Fourteenth Report NOI* adopts a broader view of the products and services that the Commission seeks to include in its assessment of competition in the wireless industry. In particular, that view includes not only CMRS but also a variety of mobile data services such as internet access and Internet Protocol-enabled services.³ In addition, the *Fourteenth Report NOI* does not confine itself to issues relating to competition for wireless services themselves, but rather articulates the Commission's desire to broaden its scope of inquiry to include wireless devices and software and applications that run on those devices.⁴ Finally, the *Fourteenth Report NOI* specifically addresses the vertical arrangements between

¹ Federal Communications Commission, Notice of Inquiry, rel. August 27, 2009, WT Docket No. 09-66 ("*Fourteenth Report NOI*").

² "Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition," DA 09-0170, WT Docket No. 09-66, rel. May 14, 2009 ("*Fourteenth Report Public Notice*").

³ *Fourteenth Report NOI* at pp. 2-3.

⁴ *Id.* at p. 3.

upstream and downstream market segments and the competitive impact of such arrangements.⁵

4. In this declaration, I provide an economic framework for the assessment of competition in the wireless industry, both among wireless service providers and among firms operating in upstream and downstream market segments. I then employ that framework to gauge the present, and likely future, intensity of competition. I also discuss various regulatory proposals recently presented to the Commission and evaluate the likely competitive effects that would result from their implementation.

B. Summary of Conclusions

5. An economically sound approach to gauging competition should reflect the following:

- a. The textbook model of perfect competition is not an appropriate standard against which to determine whether it would be in the public interest to subject an industry to public-utility style regulation. The underlying conditions required for the formal model of perfect competition to obtain are rarely satisfied in practice. However, effective competition may well be prevalent without perfect competition, and the public interest under conditions of effective competition is best served with little or no regulatory micromanagement of marketplace participants. Thus, the appropriate question to ask for the policy purposes at hand is whether the marketplace is effectively competitive.
- b. Competition in a given industry ultimately should be assessed with reference to consumer benefits. Because such benefits can accrue in numerous ways – for example, lower prices, higher-quality products or services, dynamic innovation, and/or greater consumer choice – the competitive interactions of marketplace participants should not be studied along only a single dimension.
- c. In its recent annual assessments of competition among wireless service providers, the Commission has employed an analytical framework that properly accounts for the many ways in which industry participants vie to attract and retain customers. The Commission’s focus upon four broad categories of economic indicia – namely (1) market structure, (2) provider

⁵ Id.

conduct, (3) consumer behavior, and (4) market performance – is entirely consistent with a sophisticated and rigorous approach for analysis of the public interest in competition.

- d. The Commission should not modify its current approach to lean more heavily on basic concentration metrics. Given the complexity and dynamic nature of the wireless industry, reliance on such metrics likely will result in shortsighted, and perhaps counterproductive, regulatory decisions.

6. An economically sound assessment of vertical relationships should be consistent with the following:

- a. It is well understood in economics that vertical integration, through combination, joint venture, or contracting, can, in many settings, engender material consumer benefits. Such benefits are especially likely to arise in situations where the efficient operation of a system or network depends upon compatibility among its various elements. Needless to say, such compatibility issues are present in the wireless industry.
- b. Exclusive dealing is a form of vertical integration inasmuch as it entails the formation of a substantially close business alignment or venture between two firms. Exclusive dealing can stimulate innovation and the development of new products by rendering more potent the parties' incentives to invest in targeted development and promotional activities. While exclusive dealing arrangements are not always procompetitive and consumer welfare-enhancing, they do not raise valid competitive concerns in situations where neither party enjoys a durable, dominant position.
- c. Handset innovation is a key element of competitive interaction in the wireless industry, and exclusive deals between carriers and device manufacturers have increased firms' incentives to engage in such innovation, to the ultimate benefit of consumers. Regulatory proscription of such arrangements, or even limitations on their use, would be inconsistent with sound economics and public policy absent persuasive evidence of a specific overall net deleterious impact on competition and consumers.

7. Application of the Commission's current analytical framework to the wireless industry yields the conclusion that U.S. wireless customers are benefiting greatly from robust competition.

- a. *Market structure metrics indicate that the wireless marketplace is highly competitive.* There are more than 150 separate wireless licensees in the U.S., including eight facilities-based providers each serving more than one million subscribers (of which four are national carriers). Nearly 95% of the U.S. population can obtain wireless service from at least four wireless carriers,

and even in the least populated areas of the country, consumers can choose from among, on average, 3.6 carriers. Moreover, market outcomes suggest entry conditions favorable to continuing competition.

- b. *Provider conduct metrics evidence robust competition in the wireless marketplace.* Market-based evidence demonstrates the presence of significant rivalry among carriers on both price and non-price dimensions. Per-minute charges to subscribers continue to decline, and carriers have introduced a plethora of calling plans tailored to meet the widely varying needs of consumers. In addition, carriers today offer a number of handsets at a low or zero price (by subsidizing the phone in exchange for a service contract commitment), as well as an increasing number of ever more advanced smartphones. Non-price-based competition similarly is thriving. Wireless service providers spend heavily on advertising, and their investments in network upgrades and expansion and customer service have yielded unprecedented levels of subscriber satisfaction.
- c. *Consumer behavior metrics further support a conclusion that the wireless marketplace is effectively competitive.* Wireless consumers are well-informed about available service and handset options, due to information and purchasing tools available through carriers and third-party sources. Moreover, subscriber churn levels indicate the absence of material switching costs. While churn levels have declined in recent years, this trend is entirely consistent with improvements in customer satisfaction levels and should not be considered indicative of increased switching costs.
- d. *Marketplace performance metrics point to vigorous rivalry in the wireless industry.* In addition to the declining price trends already noted, growth in various measures of output are consistent with an effectively competitive marketplace. The number of wireless subscribers as of year-end 2008 exceeded 270 million and represented a year-over-year increase of nearly 15 million. Wireless minutes increased to slightly more than 2.2 trillion in 2008, from 2.15 trillion in 2007 and 1.8 trillion in 2006. Text messaging volume nearly tripled in 2008 relative to a year earlier and MMS messaging volume more than doubled over the same period. Mobile wireless high-speed subscribership reached more than 70 million by the end of January 2009, more than triple the count as of year-end 2006. And finally, to put some of these figures in perspective, a survey of the 26 OECD countries determined that U.S. consumers enjoy, on average, the lowest cost per-minute of wireless usage of any OECD country while consuming, on average, nearly twice the number of minutes on a monthly basis relative to consumers in any other OECD country.

8. There are a number of marketplace indicators that point to intense competition in the area of cellular handsets. Today, U.S. consumers can choose from among more than

600 devices manufactured by more than 30 suppliers. The smartphone segment of the marketplace has exhibited extraordinary growth and now accounts for more than 40% of handset sales in the U.S. Moreover, the success of Apple's iPhone has sparked a wave of innovation that has produced dozens of competing devices, and promises to deliver even more in the future. Given such compelling evidence of intense rivalry in cellular handsets, limitations on the implementation of exclusive handset arrangements are unwarranted, and indeed quite likely would have a stifling effect on handset innovation, to the ultimate detriment of consumers.

9. Similarly, outcomes in the applications marketplace evidence effective competition and thus argue forcefully against regulatory oversight. Applications stores are operated by service providers, handset manufacturers, and third-parties, and many offer thousands, or even tens of thousands, of applications, including a significant percentage at little or no charge. Consumers are downloading applications by the billions on an annual basis, and the store operators have undertaken a variety of measures to facilitate the development of new applications. While it is the case that not every application is allowed distribution through every possible channel, that should not serve as a trigger for regulatory intervention. There is no indication from the marketplace that a lack of available distribution channels has impeded either the supply of innovative applications or competition in the applications marketplace. As a result, regulatory restrictions in this area are unwarranted, and quite plausibly would run counter to the promotion of competition.

10. There do not appear to be competitive issues relating to upstream (or input) markets that would justify the implementation of regulatory restrictions. With respect to spectrum inputs, it is important to note as an initial matter that the substantial degree of rivalry among wireless carriers strongly indicates that carriers have access to the upstream inputs they need, including spectrum, on terms that do not impede competition. Moreover, through spectrum aggregation, carriers have been able to expand their footprints to address the growing demand for broadband services. Nevertheless, given projections of significant additional demand for broadband services

in the future, the Commission should examine whether it can take particular steps going forward that would facilitate the continued competitive supply of spectrum.

11. With respect to special access services used for wireless backhaul, evidence from the marketplace indicates that competition is advancing, and will continue to advance, in order to serve the projected significant growth in demand for wireless broadband services. Proposals for price controls in this area should be rejected absent a clear demonstration of market failure that likely will prevent competitive provision of special access services to wireless carriers. Extant competition among wireless carriers is intense, and there is no apparent evidence that competitive issues in special access services have impeded the rivalry among wireless service providers.

12. Finally, as the Commission undertakes its assessment of wireless industry competition and considers various regulatory proposals, it is critical not to lose sight of the fact that regulation, like markets, is rarely perfect. Regulation can impede and distort competitive interactions and progress in both intended and unintended ways, and it is thus important to evaluate regulatory proposals in terms of their expected net effect on competition. Such a balancing is especially vital in a marketplace characterized by vigorous competition, where regulatory intervention can distort economic incentives and thereby harm competition and consumers.

III. An Economic Framework to Assess Competition Issues in the Wireless Marketplace

A. The Assessment of Horizontal Issues

13. Pursuant to the Communications Act, the Commission is required to prepare an annual report that examines “competitive market conditions” in the provision of CMRS and that determines “whether or not there is effective competition.”⁶ While the term “effective competition” might appear to be somewhat abstract or imprecise, in the

⁶ 47 U.S.C. § 332(c)(1)(C).

current context it reasonably can be calibrated as competition sufficiently robust to render unnecessary (and likely counter-productive) public-utility style regulatory intervention. Or stated somewhat differently, where there is a finding of effective competition, consumer welfare and the public interest are better advanced by permitting the unfettered operation of market forces rather than subjecting marketplace participants to extensive regulation.

14. The concept of effective competition should not be misconstrued as equivalent to, or even approximating, the textbook model of perfect competition.⁷ It is widely accepted among economists that the conditions necessary for the formal model of perfect competition to obtain are rarely satisfied in practice, and that real-world markets exhibit varying degrees of imperfect competition. For a variety of reasons, real-world markets differ from the “perfectly competitive” benchmark. For example, firms’ products or services may differ from each other in ways that are important to some consumers but less so to others. Another reason why an actual market may not be “perfectly competitive” is that, on the supply side, there may be only a few firms. Such a situation can arise when the production technology exhibits scale economies.⁸ In such a case, it is efficient that there be only a few firms so that they can each achieve an efficient scale. Nevertheless, if the market is effectively (or “workably”) competitive, firms will be restrained by the forces of inter-firm and inter-product (or service) rivalry. This discussion leads to the following question: When is competition that is imperfect nevertheless effective? This is a relevant question for purposes of this proceeding,

⁷ Briefly, when no single buyer or seller can influence the market price, the market is described as being “perfectly competitive.” For example, a global market for wheat or soybeans approximates the “perfectly competitive” benchmark. As a general matter, economists assume that in a perfectly competitive market all participating firms offer a homogeneous product (that is, products that are perfect substitutes for one another), sell that product at the same market price, and act as if individual output decisions have no effect on market price. In addition, in the long-run equilibrium of a perfectly competitive market, free entry and exit drive to zero the economic profits of the marginal firms.

⁸ Scale economies are present where the unit cost of production falls with the volume of output. This has profound implications for the pricing of the product or service.

because where there is effective competition, there should be little or no regulatory micromanagement.

15. In my view, the presence of effective competition is demonstrated through the following market indicia and outcomes:

- a. Consumers have a range of effective options that enable them to switch suppliers in the event their current supplier fails to continue to offer products or services that satisfy their demands for functionality and quality on reasonable terms.
- b. Suppliers justifiably are concerned about a significant loss of business to rivals should they neglect to offer attractive products or services at reasonable prices. Such concerns are justified when viable substitutes are available and consumers are not prevented from switching to such substitutes in sufficient numbers. Such concerns also are warranted when extant suppliers can, in a timely manner, expand their offerings to meet unsatisfied demand, or when new suppliers can enter the marketplace with innovative products or services to meet the needs of dissatisfied consumers.
- c. It is important that the dynamics of competition discussed in points (a) and (b) above are shown to be working; *i.e.*, that the industry not only exhibits indicia of competition, but also that those indicated forces are seen to be operative and generating consumer benefits. Here, one looks to the following categories of evidence:
 - i. *Active rivalry.* Assessment of the rivalrous interactions among marketplace participants on all pertinent price and non-price dimensions, and consumer movements in response.
 - ii. *Supply dynamics and diversity.* Consideration of the number of sources of supply available to consumers, the degree to which there are expansions by incumbent suppliers and opportunities for new entry, and the availability of access to key inputs needed by competing suppliers.
 - iii. *Impact on the marketplace and consumers.* Examination of the degree and pace of innovation in products and services, along with the rate at which quality-adjusted prices change over time.

16. As made concrete by my proposed analytical approach, the presence of effective competition ultimately is reflected in the experience of consumers in deriving material

benefits through the competitive dynamics operating in the industry.⁹ Such benefits typically arise in the form of lower prices, higher-quality products or services, heightened innovation, and/or greater variety. It is important to recognize that, because consumer benefits can take numerous forms, it would be shortsighted, and possibly counterproductive to the promotion of competition, to examine the rivalrous interactions of marketplace participants along only a single dimension, such as just prices or just network reliability. Rather, a well-reasoned assessment of competition will account for the many ways in which firms vie for consumers and by which consumers can benefit from effective competition.¹⁰

17. In the *Fourteenth Report NOI*, the Commission notes that recent CMRS reports presented an assessment of competitive conditions based upon four broad categories of economic factors: “(1) market structure; (2) provider conduct; (3) consumer behavior; and (4) market performance.”¹¹ These factors represent well-established metrics to gauge competitive performance and are entirely consistent with the framework I set out above. Consequently, it is a central conclusion of my analysis that the Commission should continue to utilize its current rigorous analytical approach in future assessments of competition in the wireless industry.

18. Consistent with this view, the Commission should resist strenuously a modification to its current approach that would place greater reliance upon basic concentration metrics. Any reliance on such metrics in the wireless industry, given its dynamic nature

⁹ Numerous public policies, including antitrust enforcement and the Telecommunications Act of 1996, promote competition for the consumer benefits it generates. (Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996)).

¹⁰ While harm to consumers is an appropriate concern related to the goal of promoting competition, harm to competitors is not. Intense rivalry that delivers material consumer benefits often can weaken or force the exit of certain firms that are less efficient or whose offerings diminish in value in the eyes of consumers. Such re-positioning of rivals is a natural consequence of robust competition and should not be viewed as an indicator of the need for regulatory intervention.

¹¹ *Fourteenth Report NOI* at pp. 4-5.

and complexity, likely will lead to misguided, and perhaps counterproductive, regulatory decisions.

19. More specifically, the wireless industry is characterized by significant economies of scale, scope, and density. In such industries, atomistic competition is inefficient, and it is unlikely that firms operating indefinitely at a small scale, limited scope, or low density will be commercially viable. In other words, in the presence of significant economies of scale, scope, and density, one would not expect to find a large number of firms pricing at or near marginal cost, nor would such an outcome be sustainable or desirable. Thus, the observation that a substantial volume of demand is being served by relatively few firms pricing significantly above marginal cost should not necessarily trigger regulatory intervention that, if implemented, likely would undermine the Commission's overarching objective – the promotion of effective competition and the consumer benefits that such competition engenders.

20. Moreover, when significant economies of scope are present, as they are in the wireless industry, suppliers typically incur fixed costs that support numerous service offerings and must be recouped. In such circumstances, the price-cost margin observed for a single service offering is not highly probative of the overall extent of the supplier's cost recovery.

21. The rapid pace of technological change in the wireless industry also renders unreliable static concentration metrics. As firms vie to surpass one another along one or more dimensions of competition, it is not surprising to find at any given point in time one or more firms with a substantial market presence. However, inasmuch as the firm grows its market share through initiatives that make its offerings more valuable in the eyes of consumers, its success should not serve as a trigger for regulatory oversight. Indeed, its success is due to its procompetitive behavior and the consumer benefits that flow therefrom. Moreover, a firm's leading market position is likely to be challenged aggressively by rivals, and consequently, its leading position will prove durable only if the firm initiates effective competitive responses. Either way, consumers are the clear beneficiaries of such robust competitive interactions.

22. Finally, rigid attention to static measures of concentration can be especially problematic in technologically dynamic and nascent businesses such as wireless broadband. Snapshot market share or concentration metrics often are poor indicators of current competitive and longer-run conditions in such markets, and thus are ill-equipped to inform the development of sound regulatory policy.

23. Along with avoiding the rigid application of concentration measures, so too should the Commission resist the application of artificial bright lines in delineating product market boundaries. Competition quite often proceeds along a continuum, and as a result, a rigid in-or-out approach can yield an inaccurate assessment of the competitive pressures that constrain a firm's conduct in the marketplace.¹² The wireless industry is extremely dynamic, and the appropriate "product" to analyze – it may include voice, data, broadband, business/consumer use, the device, applications, content, or other services – is fluid insofar as these boundaries constantly shift as providers seek to differentiate their offerings.

24. Finally, it is worth noting that regulation, like competition, is rarely perfect. Consequently, the costs and benefits of intervention should be evaluated and weighed before a regulatory regime is installed, including both the intervention's administrative costs and its potentially deleterious impact on market performance. In other words, it is

¹² Indeed, it is erroneous to conclude summarily that products outside of the relevant market do not exert some discipline on the products in the relevant market. It is, however, customary to create such sharp demarcations despite the fact that they could mislead about extant competitive constraints. See, e.g., Statement of the Federal Trade Commission concerning Royal Caribbean Cruises, Ltd./P&O Princess Cruises plc and Carnival Corporation/P&O Princess Cruises plc, FTC File No. 021 0041. (Limiting the relevant product market to "cruising" despite evidence that cruise ship operators view land-based vacation options as serious competitive threats, but including the constraining influence of land-based vacations in the overarching assessment of the likely competitive effects of the merger.)

For a discussion of conditions under which the market definition exercise is inherently arbitrary and thus might generate misleading conclusions regarding the state of competition, see, e.g., Farrell, J. and C. Shapiro, "Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition," November 25, 2008, pp. 5-6 (available at <http://ssrn.com/abstract=1313782>); Carlton, D., "Market Definition: Use and Abuse," Competition Policy International, Spring 2007, pp. 3-4. The overarching lesson is that sound policy analysis must consider and take into account the full extent of the sources of competition that discipline suppliers and offer consumers viable alternatives.

not enough that a regulatory proposal, if implemented, is deemed likely to deliver certain benefits. Implementation of the proposal is only efficiency-enhancing if its net effect is positive.¹³

B. The Assessment of Vertical Issues

25. It is well-accepted among economists that vertical integration, either through combination or contracting, can engender significant benefits to consumers.¹⁴ This is particularly true where the efficient operation of a network or system requires compatibility (interconnectivity) among its various components.¹⁵ In the wireless industry, many such compatibility issues arise – *e.g.*, between cellular networks and handsets and between handsets and software (operating systems and applications).

26. Exclusive dealing is related to vertical integration insofar as it involves the creation of a significantly integrated business relationship between two parties. Exclusive dealing can facilitate the adoption of new products by enhancing the parties' incentives to engage in targeted development and promotional activities. In the end, inasmuch as exclusive dealing propels investment in innovation and promotion, competition is intensified and consumer benefits increase.

27. In the wireless marketplace, handset innovation is an important dimension of competitive interaction. The development and introduction of an innovative handset benefits consumers in several ways, including the expansion of consumer choice and the availability of new features or greater functionality, as well as the amplification of the

¹³ Economists and policy makers have long recognized that the very process of regulating a market is costly and can (in intended or unintended ways) create its own distortions in resource allocation. See, *e.g.*, Noll, R.G., "The Politics of Regulation," chap. 22 in R. Schmalensee and R. Willig (eds.) *Handbook of Industrial Organization* (Vol. 2), North Holland (1989); Carlton, D. and J. Perloff, *Modern Industrial Organization* (3rd ed.), chap. 20, Addison-Wesley (2000).

¹⁴ For a recent general discussion of vertical mergers and their policy implications, see Jeffrey Church, *Vertical Mergers, Issues In Competition Law and Policy* 1455.

¹⁵ See Nicholas Economides, *Competition and Vertical Integration in the Computing Industry*, in *Competition, Innovation, and the Role of Antitrust in the Digital Marketplace*, Jeffrey A. Eisenach and Thomas M. Lenard (eds.), Kluwer Academic Publishers 1999.

incentives of rival manufacturers to invest in their own innovation efforts. Exclusive dealing arrangements can enhance handset manufacturers' incentives to innovate by rewarding them sufficiently *ex-post* for their *ex-ante* investment. Moreover, the reputation of the carrier that offers a particular handset, in terms of network reliability, customer service, and other pertinent characteristics, can generate spillover effects that improve the competitive position of the handset. In short, there are legitimate, procompetitive rationales for exclusive dealing between wireless carriers and handset suppliers, and as such, it would run counter to sound economics and public policy to impose regulatory strictures on such arrangements absent compelling evidence of an overall net adverse impact on competition and consumer welfare.

28. On the carrier side, the introduction of innovative handsets may require significant investments in network expansion and upgrades to support new features and functionality, as well as significant expenditures relating to promotion and customer support. As was the case with the introduction of new handsets, a particular carrier's investments in network expansion, promotion, and customer support deliver clear direct consumer benefits, and also engender indirect benefits by strengthening the incentives of rival carriers to undertake similar efforts. For several reasons, in the absence of exclusivity a carrier's incentives to engage in such pro-consumer activities may be greatly attenuated. First, anticipated sales volumes may be insufficient to justify such investments (as a result of what are known as *contract externalities*). Second, many of the benefits of such investments, for example those that flow from advertising and promotion, would extend to other carriers offering the same model and thereby reduce a carrier's incentive to undertake such investments in the first place (an effect commonly referred to as *free riding*). Third, once a carrier has made irreversible (sunk) investments in network upgrades or promotion, a handset manufacturer may have the ability to behave opportunistically, for example, by threatening to switch handset distribution to one or more rival carriers (a type of scenario known as a *holdup problem*). Exclusivity arrangements therefore can render substantially more potent carrier incentives to undertake investments that benefit consumers.

29. In general, exclusive dealing does not give rise to valid competitive concerns in a market setting where neither party enjoys a dominant position. Exclusive dealing might raise competitive concerns in situations where rivals are effectively foreclosed from the marketplace and there is no counterbalancing efficiency justification. For example, in theory an exclusive dealing arrangement may harm competition in a downstream market in a setting where a downstream firm gains control over a sufficiently large portion of an essential upstream input to leave its rivals with no viable alternative source of supply, and there is no offsetting efficiency rationale. Anticompetitive effects may also arise, in theory, in an upstream market if an upstream firm captures a substantial fraction of the downstream market and leaves its competitors unable to meet their minimum viable scale with the remaining, available demand. However, to reiterate, in the absence of a dominant position in either the upstream or the downstream market, such effects are implausible and exclusive arrangements under these conditions should be treated as presumptively procompetitive.

IV. Application of Framework to the Wireless Industry

A. Introduction

30. Application of the Commission’s existing four-prong framework, along with my own consistent template for the assessment of effective competition that I described above, demonstrates that competition both in wireless services and in other elements of what the Commission terms the “mobile value chain” is robust, and is poised to remain so in the future. Below, I discuss the evidence and many indicia of competitive intensity that support this conclusion.

B. Competition for Retail Wireless Services

Market structure metrics indicate that the wireless marketplace is highly competitive.

31. At present, there are more than 150 separate wireless licensees in the U.S., including eight facilities-based providers each serving more than one million subscribers (of which four are nationwide carriers). There are more than 40 Mobile Virtual Network

Operators (MVNOs) that lease airtime from facilities-based operators.¹⁶ Most carriers, through varying combinations of their own networks and roaming agreements, offer nationwide coverage. Based upon nationwide subscriber counts, no single carrier has a market share above roughly 30%.¹⁷ Moreover, as discussed below, newer entrants have been successful at quickly acquiring significant bases of customers.

32. With dozens of providers serving the wireless marketplace, all but a small fraction of U.S. cellular customers are able to choose from among several competing carriers. According to CTIA, more than 98% of the U.S. population can obtain service from at least three wireless carriers, 94% of the population can select from among at least four carriers, and slightly more than one-half the population enjoy at least five carrier options.¹⁸ Even in the least populated counties – defined as those with 100 or fewer individuals per square mile – consumers enjoy, on average, 3.6 wireless carriers from which to choose.

33. Consideration of entry and mobility conditions provides further compelling support for the conclusion that the wireless marketplace is effectively competitive, and that it will remain so in the future. In recent years, Commission decisions to release additional spectrum have paved the way for entry by Clearwire,¹⁹ cable companies,²⁰ and other

¹⁶ Comments of CTIA-The Wireless Association, In the matter of *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Radio Services*, WT Docket No. 09-66 (“CTIA Comments”), at pp. 2-3.

¹⁷ “Cellphone Politics,” The Wall Street Journal, July 7, 2009. While concerns have been raised about the size of the largest carriers in the U.S., and the industry’s level of concentration more generally, it is worth pointing out that concentration in the U.S. is low relative to other countries. A study conducted by Merrill Lynch determined that the wireless industry in the U.S. is the least concentrated among the 26 countries examined in the study. (“What Wireless Industry Will Tell the Feds, the Wired.com Interview (Pt. 1), August 28, 2009 (available at <http://www.wired.com/epicenter/2009/08/cita-interview-1/>).)

¹⁸ CTIA Comments at p. 3.

¹⁹ See, e.g., “Clearwire Introduces CLEAR™ 4G WiMAX Internet Service in 10 New Markets,” September 1, 2009 (available at http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle_print&ID=1326282&highlight=).

²⁰ See, e.g., “Cable firm Cox to build wireless network by 2009; Teams with Sprint Nextel to expand reach,” RCRWireless, November 3, 2008 (available at

(footnote continued ...)

providers, as well as expansion by existing carriers in terms of their network coverage, breadth of service offerings, and service reliability.

34. Moreover, market outcomes demonstrate that new entrants and smaller providers can grow rapidly and succeed. For example, it took only a few years for Virgin Mobile to acquire more than five million subscribers,²¹ and two regional providers, MetroPCS and Leap Wireless, have grown rapidly over the past several years.²²

35. At this point, it is worth noting that an assessment of factors relating to market structure properly is treated as nothing more than a starting point for a rigorous and sophisticated analysis of competition. In particular, concentration measures should not be relied upon to determine the need for regulatory intervention. Nor should they be given the final word when assessing proposed consolidations in the industry. As noted earlier, economies of scale and scope factor significantly into a provider's competitive viability, and consequently, consolidation represents one mechanism by which carriers can lower their costs and expand their service offerings. Ultimately, the state of competition in the industry is best gauged with reference to the delivery of consumer benefits, along with an understanding of how those benefits come about.²³

Provider conduct metrics evidence robust competition in the wireless marketplace.

(... footnote continued)

<http://www.rcrwireless.com/article/20081103/WIRELESS/811049972/1096/MVNO/cable-firm-cox-to-build-wireless-network-by-2009>); "Cox readies wireless network," CNET News, April 8, 2009 (available at http://news.cnet.com/8301-1035_3-10215445-94.html).

²¹ "Virgin Mobile USA Reports Strong Q3 2008 Results," November 10, 2008 (available at <http://virginmobileusa.com>).

²² MetroPCS reported in May of this year that it has grown its subscriber base by more than 20 percent per quarter since 2007 and that the carrier now serves more than six million subscribers. See "Regional Carrier metroPCS To Stay Independent," May 18, 2009 (available at <http://www.moconews.net/entry/419-regional-carrier-metropcs-to-stay-independent>). Leap Wireless reported in the same month that its net customer additions for the first quarter of 2009 reached nearly 500,000, or more than double the amount reported a year earlier. See "Leap Reports Record Net Customer Additions of Nearly 500,000 for First Quarter 2009, May 7, 2009 (available at http://phx.corporate-ir.net/phoenix.zhtml?c=95536&p=irol-newsArticle_print&ID=1286096&highlight=).

²³ For a detailed description of competition and innovation in the wireless marketplace, See Gerald R. Faulhaber and David J. Farber, INNOVATION IN THE WIRELESS ECOSYSTEM: A CUSTOMER-CENTRIC FRAMEWORK ("Faulhaber and Farber"), at pp. 4-21.

36. Factors pertaining to provider conduct center around the price and non-price dimensions of competition among carriers. Looking first at price,²⁴ U.S. wireless carriers continue to devise and offer voice and data plans that effectively lower the prices paid by consumers on a per-unit of usage basis. Average voice revenue per minute (AVRPM) declined by more than 50% over the period 2003 to 2007,²⁵ and average revenue per minute (ARPM), which measures both voice minutes and data services, also declined markedly over the same period.²⁶ Industry information similarly demonstrates recent price declines for data services. For example, the average revenue per text message fell from \$0.037 in 2005 to \$0.013 by the first half of 2008.²⁷ Moreover, these declines do not reflect more recent wireless price wars (discussed below), which should exert further downward pressure on average prices and revenues.

37. Despite the foregoing, some consumer groups have asserted that, based upon average annual billed charges, wireless consumers in the U.S. pay higher prices than their counterparts in “most other developed nations.”²⁸ When subjected to even mild scrutiny, it becomes evident that such claims rest on a deeply flawed comparison that makes no adjustment for the substantially more intensive wireless services usage of U.S. consumers *vis-à-vis* consumers in the other OECD countries. Put simply, the higher aggregate prices paid by U.S. consumers relative to consumers in other OECD countries reflect that the fact that U.S. consumers make greater use of their wireless devices; when adjusted for this greater usage (which itself is a sign of healthier competition), U.S.

²⁴ It is important to note that all of the price declines discussed in this paragraph are presented without adjusting for improvements in service quality. Quality-adjusted prices would exhibit even more pronounced downward trends.

²⁵ Rosston, G.L. and M.D. Topper, “An Antitrust Analysis of the Case for Wireless Network Neutrality,” SIEPR Discussion Paper No. 08-840, August 2009, at p. 21.

²⁶ *Id.* at Table 2.

²⁷ *Id.* at p. 22.

²⁸ See Comments of Consumer Federation of America, Consumers Union, Free Press, Media Access Project, New America Foundation, and Public Knowledge, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Docket No. 09-66, June 15, 2009 (“CFA Comments”), at p. 8.

consumers pay considerably *less* than their foreign counterparts. Moreover, these claims also fail because they do not account for variations in service quality.

38. Price-based competition is also revealed in the many innovative service plan configurations and features that have been introduced by wireless carriers, including friends and family plans; national and local calling plans; unlimited voice, data, and messaging options; unlimited, flat-rate calling plans; “pay as you go plans”; pre-paid plans; free-rollover minutes; free in-network calling; and numerous others. For example, in the last few months alone carriers have announced numerous prepaid plans that offer unlimited voice and text messaging, together with a substantial volume of data usage, at monthly prices of \$40-\$50. These prices represent reductions of as much as 60% relative to prevailing rates just six months ago.²⁹ The significant expansion of service plan configurations and features evinces a marketplace in which the carriers compete intensively to appeal most effectively to the myriad tastes of subscribers.

39. Price competition is also evident in cellular handsets. A quick review of carrier websites demonstrates that there is a wide array of handsets available at a low or zero price.³⁰ For example, AT&T currently offers 12 different handsets at no charge and a total of more than 30 for \$50 or less.³¹ Verizon’s website reveals similar figures – 12 different devices available at no charge and more than 40 overall at prices below \$50.³² A wide selection of inexpensive or free phones is also available through smaller carriers. For example, Cellular South currently offers four different devices at no charge and 17 at

²⁹ See Comments of AT&T Inc., *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services*, WT Docket No. 09-66 (“AT&T Comments”), at p. 9.

³⁰ The device counts in the text include refurbished phones and are based upon net prices after applicable rebates.

³¹ <http://www.wireless.att.com/cell-phone-service/cell-phones/cell-phones.jsp?requestid=155151&DARGS=/cell-phone-service/cell-phones/cellPhonesBodyB.jsp>.

³² <http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewPhoneOverviewByDevice&deviceType=Phones&sortOption=priceSort&lid=//global//phones+and+accessories//cell+phones#>

prices below \$50;³³ analogous figures for U.S. Cellular are two phones at no charge and 19 in total at prices below \$50 (including two devices at \$0.01 that are not part of the free phone count).³⁴ Moreover, individual handset prices exhibit a pronounced downward trend.³⁵ At its launch a little over two years ago, the least expensive iPhone, a 2G device with 4GB of storage, was priced at \$499;³⁶ today, a 3G device with 8GB of storage can be purchased for \$99, and 16GB and 32GB models sell for \$199 and \$299, respectively.³⁷ Similarly, the Blackberry Storm was introduced in November 2008 at a price of \$199.99;³⁸ at present, prices for the device are as low as \$49.99.³⁹ Handsets are available at these low prices due to carrier subsidies, and typically require the subscriber to agree to a two-year service contract. Customers who do not wish to enter into such agreements typically can obtain the handset at the non-subsidized market price.

40. The wireless industry also exhibits intensive rivalry along non-price dimensions. With respect to advertising spending, Nielsen reported that advertising in the wireless telephone services category exceeded \$4 billion in 2007, up 12% from the prior year.⁴⁰

³³ https://www.cellularsouth.com/cscommerce/products/phones/category_phones_list.jsp?_DARGS=/cscommerce/products/phones/fragments/phone_list_sort_dropdown.jsp

³⁴ http://www.uscc.com/usccellular/SilverStream/Pages/b_showphone.html?zip=60601&mkt=608830&tm=1&prepaid=N&sort=1

³⁵ Handset prices exhibit downward trends post-launch because of the availability of close substitutes, and also because of the pace of innovation, *i.e.*, the introduction of new, more advanced and feature-rich devices exerts downward pressure on the prices of relatively older devices.

³⁶ "AT&T and Apple Announce Simple, Affordable Service Plans for iPhone," June 26, 2007 (available at <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=24018>).

³⁷ <http://www.apple.com/iphone/iphone-3gs>.

³⁸ "The Blackberry Storm Available in U.S. November 21 Exclusively from Verizon Wireless," November 13, 2008 (available at <http://investor.verizon.com/news/view.aspx?NewsID=952>).

³⁹ [http://search.verizon.com/?tp=r&rv=r&q=blackberry storm](http://search.verizon.com/?tp=r&rv=r&q=blackberry+storm).

⁴⁰ "Wireless Phone Advertisers Spent \$4 Billion on Ads in '07," Nielsen (available at <http://www.marketingvox.com/wireless-phone-advertisers-spent-4-billion-on-ads-in-07-038856/>).

Both Verizon and AT&T spent well in excess of \$1 billion, and Sprint Nextel rounded out the top three with spending of \$756 million.⁴¹

41. The success of carrier efforts to improve service quality is evident in recent surveys that examine call quality performance and customer satisfaction levels. For example, in August of this year, J.D. Power reported that continued investments in network upgrades and advanced technologies has led to improvements in call quality performance.⁴² The American Customer Satisfaction Index determined that in the first quarter of 2009 an unprecedented 69% of wireless consumers were satisfied with their service.⁴³

42. Data on subscriber complaints compiled by the Commission further confirms the significant strides the wireless industry has made in improving service quality and the overall customer experience. For the first quarter of 2009, the Commission reported 4,299 carrier-related wireless complaints. To put this figure into context, consider that there are roughly 270 million wireless subscribers in the U.S., thereby generating a quarterly complaint rate of around 0.0015 percent. Moreover, complaint volume in the first quarter of 2009 represented a decrease of 32 percent year-over-year in absolute terms, even as the subscriber population and average usage rates increased.⁴⁴

43. The substantial capital investments undertaken by wireless providers represent another non-price dimension along which competition occurs. In 2008, despite a faltering economy, wireless carriers in the U.S. collectively reported capital expenditures of \$20.1 billion,⁴⁵ and projections for 2009 yield a similar number.⁴⁶ AT&T, Verizon,

⁴¹ Id.

⁴² “J.D. Power and Associates Reports: Overall, Wireless Carriers Reduce Dropped Calls, Failed Connections and Static, Driving an Improvement in Call Quality Performance,” J.D. Power and Associates, August 27, 2009 (“As carriers continue to upgrade existing network infrastructure and create more robust coverage footprints, wireless customers are recognizing an improvement in performance.”).

⁴³ Id.

⁴⁴ *AT&T Comments* at pp. 37-38.

⁴⁵ “Wireless Quick Facts,” (available at <http://www.ctia.org/advocacy/research/index.cfm/AID/10323>).

Sprint, and smaller carriers all have announced plans to invest heavily in the expansion of their wireless broadband network footprints.⁴⁷

44. Finally, carriers compete for subscribers through the diversity of their respective handset offerings. At present, there are more than 600 unique wireless devices available to U.S. wireless consumers that offer a rich array of functions and capabilities.⁴⁸ There are a substantial number of devices that offer Internet access, including 29 with integrated Wi-Fi capability, and an increasing number of handsets with Bluetooth capability.⁴⁹ And the availability of smartphones has grown significantly – smartphones now account for 42% of all handsets sold in the U.S., up from 27% in the second quarter of 2008.⁵⁰

Consumer behavior metrics further support a conclusion that the wireless marketplace is effectively competitive.

45. The observed behavior of wireless consumers is consistent with an intensely competitive marketplace. To begin with, wireless consumers are well-informed about available carriers and service plan pricing and options. A multitude of sources are available to help consumers navigate the many options available to them and to determine which particular handset and/or service plan will best satisfy their requirements. For example, wireless carriers offer on-line mapping tools that provide consumers with service information in specific geographic areas, both with respect to voice coverage and wireless data applications.⁵¹ Numerous independent sources also

(... footnote continued)

⁴⁶ *AT&T Comments* at p. 15-16.

⁴⁷ *Id.* at pp. 17-18.

⁴⁸ *CTIA Comments* at p. 32.

⁴⁹ *Id.*

⁵⁰ *AT&T Comments* at p. 47 & n.148.

⁵¹ *CTIA Comments* at pp. 35-36. According to CTIA, these mapping tools are provided on the websites of the four national carriers and other service providers.

review products and offer advice relating to the selection of a wireless carrier and handset.⁵²

46. Subscriber churn rates provide a further indication of significant competition. Although relatively low churn rates can in some circumstances indicate the presence of significant switching costs, there is no evidence of such costs in the highly competitive wireless industry. As of the first quarter of 2008, monthly customer churn across wireless subscribers stood at 1.9%, or more than 20% on an annualized basis.⁵³ This means that tens of millions of subscribers are switching carriers every year. These figures are down from prior years,⁵⁴ a trend that is consistent with improvements in customer satisfaction found by consumer surveys noted above. Declining churn rates are also consistent with the fact that wireless carriers have invested heavily to improve call quality, customer service, and other pertinent aspects that drive customer satisfaction levels.

Marketplace performance metrics point to vigorous rivalry in the wireless industry.

47. Market outcomes provide further support for the proposition that the wireless marketplace is effectively competitive. As noted earlier, prices for both services (voice and data) and handsets continue to fall even as quality continues to increase. In addition, a variety of output measurements exhibit upward trends, as summarized below:

- a. The number of wireless subscribers topped 270 million at the end of 2008, an increase of almost 15 million from a year earlier.⁵⁵ The 2008 subscriber count represented wireless penetration of nearly 88% in the U.S., up from 83.2% as of the end of 2007.⁵⁶

⁵² *Id.* at p. 36. One such source is www.myrateplan.com, which provides consumers with tools to compare service plans across multiple providers, as well as assistance with the selection of both service plans and devices. (*Id.*)

⁵³ Rosston and Topper (2009) at p. 23.

⁵⁴ *Id.*

⁵⁵ *CTIA Comments* at p. 42.

⁵⁶ *Id.*

- b. Despite a general industry-wide migration from voice to data, wireless minutes of use in 2008 climbed to just over 2.2 trillion. Analogous figures for 2007 and 2006 were 2.15 trillion and 1.8 trillion, respectively.⁵⁷
- c. Text messaging volume grew substantially from 2007 to 2008, rising from 363 billion to just over 1 trillion.⁵⁸
- d. MMS messaging volume reached almost 15 billion in 2008, more than double the 6.1 billion MMS messages in 2007.⁵⁹
- e. Mobile wireless high-speed subscribership has exhibited a substantial upward trajectory, increasing from 22.3 million at the end of 2006, to 51 million year-end 2007 and then to more than 70 million by the end of January 2009.⁶⁰

48. Finally, it is worth noting that prices and usage in the U.S. wireless marketplace compare favorably to other industrialized countries. In the fourth quarter of 2008, the cost per-minute of wireless usage in the U.S. was the lowest among the 26 Organization for Economic Co-Operation and Development (OECD) countries, and 60% lower than the average cost in these countries.⁶¹ In terms of output, the average U.S. subscriber used 829 minutes per month in the fourth quarter of 2008, which is almost twice the average usage of every other OECD country and is more than three times the average usage in all but two other OECD countries.⁶²

C. Competition for Devices

49. As already discussed, there are a number of marketplace indicators that point to robust competition in the area of cellular handsets. At present, devices from more than 30 manufacturers, more than 600 devices in total, are available to U.S. consumers. Wireless carriers offer a wide range of handsets, from no-frills models targeting limited-use customers to smartphones capable of running broadband applications. Service

⁵⁷ Id. at p. 43.

⁵⁸ Id.

⁵⁹ Id.

⁶⁰ Id. at pp. 47-48.

⁶¹ Id. at p. 50.

⁶² Id. at p. 51.

providers continue to offer a significant number of phones at little or no charge, and prices for smartphones have declined substantially over the past couple of years. Price declines, as well as significant advances in functionality, have contributed to dramatic growth in the smartphone segment, which today accounts for more than 40% of handset sales in the U.S.

50. Another significant factor driving the substantial upward trajectory in smartphone sales and the proliferation of devices is the success of Apple's iPhone. By one account, the success of the iPhone spurred the introduction of more than 25 devices that attempt to compete with the iPhone in terms of technology, functionality, and style.⁶³

For example:

- a. The Instinct, launched by Samsung in June 2008, was promoted as offering full touch-screen functionality, live TV, Bluetooth, and GPS with turn-by-turn navigation, among other capabilities.⁶⁴
- b. An October 2008 Verizon announcement of the pending introduction of the Blackberry Storm touted the device's revolutionary "clickable" touch-screen.⁶⁵
- c. In October 2008, T-Mobile released the T-Mobile G1 with Google, an Android-based device advertised as combining full touch-screen functionality, a QWERTY keyboard, a rich mobile internet experience, Android Market applications, and popular Google desktop applications such as Gmail, YouTube, and others.⁶⁶
- d. Sprint initiated sales of the Palm Pre in June of this year. A Sprint press release promoted the device as offering an innovative new WebOS that is

⁶³ "Wireless Emerging Devices: Smartphones to Drive the Data Rescue," Macquarie Research, March 30, 2009, at pp. 2-3.

⁶⁴ "Award-Winning Samsung Instinct™ Available Exclusively from Sprint on June 20 for Just \$129.99," June 18, 2008 (available at <http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle%20newsroom&ID=1167445&highlight=>).

⁶⁵ "Blackberry Takes The World By Storm With Verizon Wireless And Vodafone," October 8, 2008 (available at <http://news.vzw.com/news/2008/10/pr2008-10-07g.html>).

⁶⁶ "T-Mobile Launches the Highly Anticipated T-Mobile G1," October 22, 2008 (available at http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20081022&title=T-Mobile%20Launches%20the%20Highly%20Anticipated%20T-Mobile%20G1).

fully integrated with the Internet and a new operating system that greatly facilitates the creation of applications and content.⁶⁷

51. Of course, the iPhone itself has continued to evolve into a more powerful and feature rich device. The latest generation iPhone, the 3G S, became available in June of 2009 and offers a number of new benefits and features, including better speed and performance, a longer battery life, voice recording, hands-free voice control, and a new operating system, iPhone OS 3.0.⁶⁸ And not surprisingly, other handset manufacturers are poised to continue to compete with Apple with their own new models.⁶⁹ In particular, Google has stated that by the end of 2009 as many as 20 Android-based handsets will be available.⁷⁰ Although that figure is smaller than the number of planned introductions in Europe, Google's Senior Director for Mobile Platforms explained that the slower pace of introduction in the U.S. is attributable to the intense competition in the domestic wireless marketplace and the resulting desire of carriers and device manufacturers to obtain an advantage in the marketplace through the development of highly innovative and differentiated versions of the Android phone.⁷¹

52. Despite compelling evidence of intense rivalry among handset manufacturers, and among the carriers who seek to offer innovative and differentiated devices as a means to attract and retain subscribers, exclusivity arrangements between wireless carriers and device suppliers have drawn some opposition. In short, I find condemnation of these agreements, or even proposals to limit their use, to be without any sound economic basis. There is no support for the contention that exclusive deals between

⁶⁷ "Sprint to Offer Palm Pre Nationwide on June 6," May 19, 2009 (available at <http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle%2Fnewsroom&ID=1289761&highlight=>).

⁶⁸ "iPhone 3G S Available at AT&T Tomorrow," June 18, 2009 (available at <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26868>).

⁶⁹ AT&T Comments at p. 37.

⁷⁰ "Google: Expect 18 Android Phones by Year's End," *The New York Times*, May 27, 2009 (available at <http://bits.blogs.nytimes.com/2009/05/27/google-expect-18-android-phones-by-years-end/>).

⁷¹ *Id.*

carriers and device suppliers have foreclosed competition. Because there are literally hundreds of handsets available in the marketplace, including a wide variety of smart phones, and device innovation continues to advance at a dizzying pace, any particular exclusive deal cannot validly be said to foreclose other carriers from accessing a rich array of devices, and thus does not threaten any carrier's competitive viability.

53. Nor do exclusive deals have the effect of lessening competition among device manufacturers. As discussed above, the wireless marketplace is served by a large number of competing carriers through which handset suppliers can obtain distribution. Moreover, to the best of my knowledge, no exclusive deal between a carrier and a device manufacturer restricts the carrier's ability to distribute the devices of other manufacturers, and therefore these agreements do not prevent device manufacturers from obtaining distribution for their handsets. For example, the agreement between Apple and AT&T involving the iPhone places no restrictions on AT&T's right to distribute any handset from any manufacturer. And more generally, I am not aware of any exclusive arrangement that places limitations on either party that extend beyond the device covered by the agreement. Indeed, there are many examples where a device manufacturer has entered into separate exclusive arrangements for separate handsets with multiple carriers.⁷²

54. To conclude this discussion, I wish to address briefly a theoretical argument that consumer welfare would be enhanced if the exclusivity provisions in handset distribution agreements were relaxed in those areas not covered by the contracting carrier's network, such that one or more carriers with network coverage could offer the handset in question. From the standpoint of sound economics, such an argument should not compel relaxation of an agreement's exclusivity provisions. Indeed, because

⁷² See, e.g., Katz, M.L., "An Economic Analysis of the Rural Cellular Association's Petition for Rulemaking Regarding Exclusivity Arrangements between Commercial Wireless Carriers and Handset Manufacturers," February 2, 2009, at pp. 19-20 (Noting LG agreements with AT&T, Alltel, Sprint Nextel, and Verizon Wireless, and Samsung agreements with AT&T, Alltel, T-Mobile, Sprint Nextel, and Verizon Wireless.)

of the intense rivalry in the wireless service and handset markets, the incentives of carriers and device suppliers to form and implement their exclusive deals do not diverge from the public interest on net. Consequently, regulation of the details of their agreement is unwarranted.

55. Moreover, as noted earlier, handset manufacturers have incentives, unrelated to their contractual commitments, to limit the set of carriers with which they contract. Such incentives arise because of the nexus between a carrier's network reliability, customer service, and other factors, and the manufacturer's sales, profits, and reputation. Even without an exclusive arrangement, it cannot be assumed that a given handset manufacturer would elect to distribute the handset in question through carriers with network coverage in the area that the contracting carrier's network does not reach. Among other reasons, any given carrier's expected sales volume in the area in question may be too low to make economical the investments in promotion and customer support that the manufacturer would consider necessary to promote its own business interests.

56. Finally, with respect to AT&T's business interests, it plausibly is the case that AT&T's national brand name reputation is enhanced by virtue of its status as the only carrier offering the iPhone. Accordingly, the carrier would have legitimate, procompetitive reasons not to surrender that status by allowing Apple to make the iPhone available to other carriers in areas in which AT&T currently does not offer service.

D. Competition for Applications

57. Coincident with the significant growth in smartphone penetration, the cellular handset applications marketplace has reached an unprecedented level of competitive intensity. Moreover, the current pace of innovation, coupled with the many available channels through which applications can obtain distribution, strongly suggest that competition in the applications segment will remain robust. Consequently, and as explained in more detail in the next section, there is no sound economic support for the

proposition that regulatory intervention would improve outcomes in the applications marketplace.

58. The magnitude of applications available to wireless service customers, and the downloading activity of these customers, are two persuasive indicators of a highly competitive applications marketplace. As discussed in detail in AT&T's comments, a number of handset manufacturers, wireless service providers, and third-parties operate applications stores.⁷³ Many of these stores offer thousands, or even tens of thousands, of applications, with a significant number available for download at little to no charge.⁷⁴ Equally impressive is the rate at which applications stores have added content. For example, Apple launched its applications store on July 10, 2008 with 500 third-party applications available for download.⁷⁵ By the end of May 2009, less than one year later, the store offered more than 45,000 applications;⁷⁶ the applications count today exceeds 85,000.⁷⁷ Moreover, download activity at these stores is substantial. For example, it was reported in September of this year that cumulative downloads from Apple's store has passed 2 billion.⁷⁸

59. Consistent with their economic incentives, operators of applications stores have undertaken measures to foster innovation on the development side. For example, to facilitate the development of third-party applications, Apple provides software

⁷³ *AT&T Comments* at pp. 65-67.

⁷⁴ Id.

⁷⁵ "Catch-22: The Price vs. Popularity Dilemma of Pricing iPhone Applications," May 22, 2009 (available at <http://www.razorianfly.com/2009/05/22/catch-22-the-price-vs-popularity-dilemma-of-pricing-iphone-applications/>).

⁷⁶ Id.

⁷⁷ "Apple Passes 2 Billion App Downloads," *Reuters*, September 28, 2009 (available at <http://www.reuters.com/article/technologyNews/idUSTRE58R2P120090928>).

⁷⁸ Id.

development kits and related support to independent programmers.⁷⁹ Similarly, AT&T offers support to programmers in a number of ways. AT&T's Universal Design guidelines, available to developers through AT&T's website, facilitates the development of applications that can be distributed through AT&T's Media Mall (or through other channels).⁸⁰ In addition, AT&T provides applications developers with, among other resources, software development kits from several device and operating system suppliers, testing tools for mobile applications, simulators for testing applications, white papers containing developer insights, recommendations, and technical information, and venues through which developers can submit their applications to select customers for testing and feedback.⁸¹

60. From the above, I do not mean to suggest that any particular application can obtain distribution through every available channel. As discussed below, certain platforms, Apple's iPhone being one example, employ pre-certification procedures before accepting applications for distribution. However, the presence of such procedures in no way signals the need for regulatory intervention. First, there may be legitimate reasons underlying the decision by an applications store owner to assume this role – for example, to protect against viruses or other security threats, to ensure efficient operation of the device, or to guard against distribution of objectionable or poor-quality content.⁸² Beyond that, it is undeniable that there exist a number of available channels through which an application can secure distribution. The many tens of thousands of applications available today in the marketplace, together with the

⁷⁹ Thirteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 24 FCC Rcd 6185 (2009) ("Thirteenth Report"), at ¶ 166.

⁸⁰ Id.

⁸¹ Id. at pp. 50-51.

⁸² An applications store owner legitimately may also decline to distribute an application because it competes directly with the store owner's products. Consistent with sound economics, antitrust policy in the U.S., except in quite limited circumstances, imposes no duty upon a firm to deal with its rivals. There is no reason for the FCC to stray from this policy and mandate openness requirements in the applications marketplace.

frenzied pace of innovation, provide ample evidence of widespread distribution alternatives and thriving competition in the applications marketplace.

E. Competition for Inputs

61. The *Fourteenth Report NOI* broadens the Commission's assessment of wireless industry competition to include "upstream markets" for spectrum and non-spectrum inputs.⁸³ With respect to non-spectrum inputs, in particular special access services, evidence from the marketplace indicates that competition is increasing. In addition, there is no apparent lack of availability of special access that has hampered competition among wireless carriers. I discuss these conclusions, and their underlying support, later in this declaration.

62. Turning to spectrum inputs, it is worth noting at the outset that the substantial degree of rivalry among wireless carriers strongly suggests that carriers have access to upstream inputs, including spectrum, on terms that do not stultify competition.⁸⁴ Specific indicia from the marketplace also suggest that competition among service providers has not been impeded by competitive issues relating to spectrum supply. First, carriers have been able to aggregate spectrum in order to expand their footprints and to meet the growing demand for broadband services.⁸⁵ Second, the recent 700 MHz auction allocated a substantial amount of additional spectrum, much of which has yet to

⁸³ *Fourteenth Report NOI* at ¶¶ 9, 23.

⁸⁴ Moreover, exclusive spectrum rights are key to encouraging investment in communications networks. Such investment is likely to foster the ability of all carriers to offer advanced features and services. (See the Declaration of Thomas W. Hazlett on behalf of AT&T, September 30 2009 ("Hazlett Declaration"), at ¶ 34.

⁸⁵ Thomas W. Hazlett notes in his declaration that the rivalry among carriers is already driving a burgeoning market in spectrum access. Mandates that impose new spectrum sharing requirements on competitive carriers utilizing liberal licenses are not likely to produce net benefits, while risking major disincentives for further investments in network capacity. (See Hazlett Declaration at ¶ 59.) For specific examples, See, e.g., "AT&T pays Sprint \$59M in spectrum swap," *FierceWireless*, August 5, 2009 (available at <http://www.fiercewireless.com/node/47061/print>); "Clearwire Completes Transaction With Sprint Nextel and \$3.2 Billion Investment to Launch 4G Mobile Internet Company," December 1, 2008 (available at <http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1231029&highlight=>).

be developed.⁸⁶ And finally, observed new entry, and the rapid growth of certain entrants, indicate the absence, at present, of material spectrum constraints.

V. Regulatory Intervention in the Wireless Industry Poses a Significant Danger of Dampening Investment, Inhibiting Competition, and Harming Consumers

A. Introduction

63. Competition in the wireless industry has emerged and thrived over time in the face of a procompetitive, minimally intrusive regulatory approach. The fact that past policies have worked so well means that new requests for regulatory oversight should be viewed with great skepticism, and ultimately rejected, absent compelling evidence that there exists a significant and persistent market failure that likely will derail a continuing state of effective competition.

64. The Commission has recently seen a number of proposals for regulating the wireless (or a related) industry. Such proposals address, among other areas, open access, limitations on handset exclusivity, special access rate regulation, and mandatory roaming requirements. None of these proposals is supported by credible arguments proving market failure, and each threatens to harm consumers by muting the investment incentives of marketplace participants and, more generally, dampening competition. In short, most of these proposals properly are viewed as requests for special concessions designed to protect the interests of certain competitors, at the expense of competition and consumer welfare.

⁸⁶ See, e.g., "FCC: Verizon Wireless a big 700 Mhz auction winner; Now what?" March 20, 2008 (available at <http://blogs.zdnet.com/BTL/?p=8276>); "Verizon completes initial testing of 4G wireless service," August 15, 2009 (available at <http://topnews.us/content/26580-verizon-completes-initial-testing-4g-wireless-service>); "CenturyTel Joins LTE Movement," February 20, 2009 (available at <http://www.telecompetitor.com/centurytel-joins-lte-movement/>).

B. Open Access

65. Proposed open access requirements refer generally to rules that would proscribe limitations on the “openness” of cellular networks and cellular handset platforms. In short, there is no evidence of market failure that would support regulatory intervention in this area.⁸⁷ As noted previously, the wireless industry exhibits a broad array of key indicia consistent with an intensely competitive marketplace – declining prices, increasing output, improving service quality, and substantial capital investment, among others.

66. A regulatory mandate governing the degree of openness is particularly ill-advised in markets, like wireless, that are “two-sided.” In a two-sided market, a platform serves both consumers and suppliers (or in some cases two distinct groups of consumers), and indirect network effects are present: each additional consumer increases the benefit of suppliers, while each additional supplier increases the benefit of consumers.⁸⁸ A wireless network properly is viewed as a two-sided market because it provides a platform that connects users on one side and application and device developers on the other side.

67. Different platforms vary substantially in numerous ways, including, importantly, the extent to which they are “open” to developers, consumers, or rivals. In most two-sided markets, and in particular in the nascent marketplace for mobile broadband services, it is unclear which institutional arrangements likely will prove most effective in balancing the two sides of the market to the benefit of all participants. In fact, the economic literature shows that in some circumstances closed platforms may be more socially desirable than open platforms. In an open platform, each supplier of a given input takes into account the effect of its price on its own sales, but does not take into

⁸⁷ For a discussion regarding the lack of necessity in mandating “openness,” See Faulhaber and Farber at pp. 25-27.

⁸⁸ A familiar example of a two-sided market is a newspaper: the newspaper publisher seeks to attract readers, and as the population of readers increases, the newspaper becomes more attractive to advertisers. At the same time, as the amount of information conveyed through advertising increases, the newspaper becomes more valuable to (at least some significant number) of readers.

account the effect of its price on *total* user demand for the platform. This lack of internalization can tend to induce too little usage, which in turn – through indirect network effects – leads to too little supplier entry. In contrast, closed platforms can more effectively balance the two sides of the market, and operators of such platforms have a greater ability and a greater incentive to devise pricing and other policies that internalize indirect network effects between users and suppliers. This “balancing” between the two sides of the market may lead to higher user adoption and higher total social welfare compared to an open platform.⁸⁹ Given the uncertainty about the optimal degree of openness, there are substantial risks associated with a regulatory approach that prematurely condemns any particular strategic approach along the continuum.

68. Rather than fixate on where along the continuum a particular platform resides, sound competition policy should focus on the degree of competition across platforms and whether suppliers seeking to obtain distribution are able to do so. To illustrate this point, consider magazines, which are a familiar example of a two-sided platform. Magazines employ different policies with respect to the types and breadth of advertisements they are willing to run, which means that any given advertiser may be foreclosed from placing an ad in particular magazines. However, the fact that a family-oriented publication may be unwilling to run an advertisement for lingerie or cigarettes in no way implies that regulatory intervention is warranted. For one thing, there exist a multitude of alternative advertising vehicles through which the excluded advertisers in this example can peddle their wares. And moreover, the magazine’s decision to place restrictions on the types of ads it will run presumably flows from a recognition that its target audience could very well find such ads offensive or otherwise undesirable. In other words, the restrictions are procompetitive insofar as they facilitate the publisher’s ability to attract its target group of readers.

⁸⁹ Hagiu, A, “Proprietary vs. Open Two-Sided Platforms and Social Efficiency,” working paper.

69. A study of the wireless marketplace reveals a wide range of policies that deliver choices to consumers all along the open-to-closed continuum, including, most importantly for this discussion, options tailored to meet specific consumer demand for an open environment. Google's Android policy, for example, is a self-described "open" operating system, by which Google means that there is no pre-certification required before an application can be made available for the Android operating system (though if a sufficient number of users "flag" an application as problematic, Google will review and potentially remove the application from its app store). On the other hand, Apple reviews and approves applications for security and other reasons before making them available in its applications store. To condemn Apple's approach (relative to Google's Android) would ignore the fact that the iPhone offers a certain level of security and quality that Google's policy presumably cannot. More importantly, forcing Apple to ease or eliminate its applications certification process would do away with an attribute of the iPhone platform that is valued by some consumers.

70. Initiatives adopted by the major service providers also include examples of products and services that would appear to meet particular consumers' desire for an open environment. For example, AT&T for some time has allowed customers to utilize compatible GSM wireless devices on the company's network.⁹⁰ With AT&T's "Bring Your Own Device" program, consumers can use a non-AT&T phone, running the operating system of the consumer's choice, simply by acquiring a Subscriber Identity Module (SIM card) from the company, selecting a rate plan, and configuring the device for voicemail, Internet browsing, and text messaging.⁹¹

71. Certain provisions governing the 700 MHz Upper Band C Block provide yet another example. In the 700MHz spectrum auction conducted in March 2008, the FCC

⁹⁰ See <http://choice.att.com/flash.customerdevices.aspx> ("You've got the choice: either conveniently get a phone through AT&T for guaranteed worry-free functionality, or bring any GSM phone and we'll connect it to our network.").

⁹¹ Id.

mandated that one band of the auctioned spectrum – the C Block – must have an open platform for devices and applications, subject to “reasonable network management.”

While it is still too early to evaluate fully the impact of the C Block openness provision, the existence of these provisions will ensure the availability of this model in the marketplace and provide empirical experience on which the Commission can base future regulatory decisions. At this stage, particularly given the nascent state of the broadband wireless marketplace and the explosive growth of applications in the last two years, it is at least premature and perhaps generally problematic to consider the imposition of more widespread open access provisions.

72. While much of the discussion in this section is focused on open platforms, I cannot emphasize enough that in the context of two-sided markets, it is the competition between platforms – and not necessarily the degree of openness that characterizes each particular platform – that is central to consumer welfare. For this reason (among others), it is important to resist regulatory proposals based upon a claim that complete “openness” inexorably produces the best market outcomes from a consumer welfare perspective. Such claims are not valid.

73. A final point to make is that an open access mandate could unnecessarily constrain the ability of carriers to offer value propositions that target specific consumer preferences and trade-offs. The Kindle is perhaps the best example – customers pay a flat fee for the device and varying prices for content downloads, but no monthly fee for wireless network access and usage (which is provided by Sprint). Customers also agree not to use the Kindle for anything other than its intended purpose. And it is not difficult to imagine other new products that would be priced low to target value-oriented consumers whose demand for more advanced functions is highly elastic. Importantly, if the developer of such a device were unable to place limitations on the ways in which it was used, its low price might also attract users who, but for the device’s availability, would select another, higher-priced device that satisfied their requirements. If this hypothesized cannibalization effect were projected to be sufficiently potent, the

developer could determine that the required investment in the new device would not be recouped, and hence the new device would never get off the ground.

C. Limitations on Handset Exclusivity

74. Several relatively small wireless carriers have taken the position that exclusive distribution agreements between national service providers and cellular handset manufacturers are injurious to competition. Alternatively, some small carriers have advocated that the Commission consider the installation of limitations on the ability of device manufacturers to participate in such agreements. As explained earlier in this declaration, exclusivity agreements often sharpen competition and advance consumer welfare. Such agreements conceivably can lead to market failure only when particular criteria are satisfied, and as discussed earlier, these criteria are not satisfied here.

75. Consequently, curtailment of a provider's ability to join forces with a handset supplier would be expected to diminish the intensity of competition among service providers and among handset manufacturers. In particular, as explained above, such a mandate would dilute provider incentives to invest in their networks, in customer support, and in promotional activities. Additionally, the incentives of handset manufacturers to invest in the development and deployment of innovative devices and technologies would be adversely affected insofar as limitations on handset exclusivity threatened to undermine their ability to recoup those investments.

D. Special Access

76. The Commission has received numerous demands for price controls in special access, a type of dedicated high-capacity transmission used by businesses and communications providers, including for wireless backhaul. As an initial matter, there is no indication in the marketplace that either a lack of availability of special access services, or the prices at which they are offered, have impeded the ability of wireless carriers to compete. As discussed below, there is evidence that strongly suggests competition in special access services is advancing overall, and that competition for wireless backhaul is particularly robust. While I have not undertaken a sufficiently involved assessment of competition in this area to state unequivocally that regulation in

this area is no longer warranted, I would nevertheless oppose the present requests for price controls on a wholesale input based upon my earlier observation that there is no apparent evidence that there are competitive issues in special access services that have dampened the rivalry among wireless carriers.⁹² Indeed, as demonstrated above, competition among wireless carriers and among participants in related market sectors is thriving.

77. Insofar as I have examined the present state of competition in special access services, I have seen no evidence of market failure with respect to the provision of such services to wireless carriers. According to a recent study prepared by USTelecom, investment and innovation in special access services is strong and prices are declining.⁹³ An average of six fiber-based competitors operate in each of the top 50 MSAs, and competitive providers have deployed over one hundred thousand route miles of fiber that connect tens of thousands of office buildings.⁹⁴

78. Competition is not limited to traditional fiber-based entities, but rather includes cable operators and fixed wireless providers.⁹⁵ Cable operators today offer voice, video, and high-speed data services. Next generation cable broadband technology, scheduled to be available throughout the U.S. by 2013, will be capable of transmission rates as high as 100 megabits per second.⁹⁶ The top five cable operators collectively already earn roughly \$3 billion annually in business services revenues (including high-capacity

⁹² It is also worth noting that if it were determined that providers of special access services enjoyed significant and durable market power, the appropriate remedies would not be specific to wireless carriers as customers, but rather would apply more generally and thus be subject to the corresponding process for consideration of available regulatory measures.

⁹³ "High-Capacity Services: Abundant, Affordable, and Evolving," USTelecom, July 2009 ("USTelecom 2009"), at p. ii.

⁹⁴ Id. at p. v.

⁹⁵ Id. at p. iv.

⁹⁶ Id. at p. iv.

services), and they have announced planned investments on the order of several billion dollars to expand business services.⁹⁷

79. Similarly, fixed wireless providers represent a significant source of competition in the provision of special access services. There are more than a dozen fixed wireless providers offering service in regions throughout the U.S., including nearly all of the top 50 MSAs.⁹⁸

80. Looking ahead, special access services appear to represent a significant growth opportunity for existing providers and potential new entrants. In particular, with respect to wireless backhaul, there are more than 240,000 wireless cell sites throughout the U.S. that must be connected to transport networks. Given projections of increased wireless data usage, industry analysts forecast that wireless backhaul revenues will increase three-fold or more relative to today's \$3 billion figure over the next two to four years.⁹⁹

81. Similarly, the bandwidth required to satisfy future demand for wireless broadband services is projected to grow at a compounded annual rate well in excess of 100% through 2012.¹⁰⁰ To keep pace with the projected growth in demand, incumbent wireless providers and new entrants alike will have no choice but to deploy new fiber. I have seen no indication that any particular carrier has, or likely will have, a material advantage *vis-à-vis* its rivals in terms of the deployment of new facilities. Consequently, implementation of price regulation very well could undermine the incentives of both incumbents and new entrants to invest in such deployment.

82. Self-supply should also be counted among the viable competitive alternatives in the area of wireless backhaul. Clearwire has reported that by the end of 2010 its

⁹⁷ Id.

⁹⁸ Id.

⁹⁹ Id. at p. v.

¹⁰⁰ Id. at p. 3.

WiMAX network will reach 120 million people, including 75% of the top 50 cellular markets.¹⁰¹ The company has more than 18,000 cell sites under development, and has stated that it plans to rely almost entirely on microwave transmission for its backhaul needs.¹⁰²

83. In sum, requests for price controls in the area of special access should be viewed for what they are: appeals for price concessions that would benefit certain marketplace participants, but dampen incentives to invest in new facilities and thereby unnecessarily curb the growing competition presently observed in the marketplace. Indeed, the linkage between mandated lower prices for special access and investment incentives raises more than a theoretical concern. For example, Sprint has stated that it opts not to use microwave in the U.S. precisely because special access is already so inexpensive.¹⁰³ Lower than competitive prices for special access generated by inappropriate regulation would only heighten firms' incentives to rely upon legacy technology, at the expense of new competition and investment.

E. Roaming

84. The Commission has been presented with several requests to impose an automatic data roaming obligation on service providers, and to apply that obligation to both current and future data transmission technologies.¹⁰⁴ For several reasons, these requests, if granted, likely would be detrimental to competition.

¹⁰¹ Id. at p. vi.

¹⁰² Id. Clearwire's ability to reach its goals is enhanced greatly by the more than \$3 billion in investor capital that it has been able to secure. (See the Declaration of Thomas W. Hazlett on behalf of AT&T, September 30 2009, at ¶ 31.)

¹⁰³ "Sprint Picks Wireless Backhaul for WiMAX," Industry Standard, July 9, 2008 (available at <http://www.thestandard.com/news/2008/07/09/sprint-picks-wireless-backhaul-wimax>). According to Sprint's Chief Technology Officer, the reason the penetration of alternative, high-capacity technologies such as fixed wireless in the U.S. lags other nations is because "relatively abundant and inexpensive T1 lines have stifled the technology here."

¹⁰⁴ The Commission also received requests to expand the automatic roaming rule to eliminate the so-called "in-market exception." The current automatic roaming rule requires a serving carrier to provide automatic roaming (limited to voice, SMS and interconnected PTT) to a requesting carrier anywhere outside of a requesting carrier's

(footnote continued ...)

85. First, a principal means of competitive differentiation in wireless markets is network coverage. Network coverage, in turn, is a direct function of carriers' substantial investments to build out their networks, even in areas where their prospects for a significant base of customers are slim. If a service provider is compelled to share particular segments of its facilities with competing carriers, its facilities will lose at least some of their potency as a source of competitive differentiation, and its incentives to invest in its facilities will correspondingly erode. The economic logic behind this conclusion is straightforward. A duty to deal obligates a carrier to make portions of its network available to rival carriers, and in the process those rivals likely become more formidable competitors. Because the expected rewards from its network investments are reduced – some fraction is transferred to rivals – its incentives to invest likewise decline.

86. Second, the wireless marketplace historically, and without regulatory intervention, has been successful in promoting roaming agreements between facilities-based carriers and partners on terms consistent with each party's economic self-interest. Importantly, such agreements, by definition, do not interfere with a carrier's incentives to undertake network investments. However, the imposition of regulation with respect to data transmission carries a significant risk that the required pricing will disrupt carrier investment incentives – such an effect would arise if the pricing were set at levels at which the facilities-based carriers would not be willing to enter into roaming agreements but-for the regulatory requirement to do so.

87. A third and related point is that a roaming obligation can deleteriously impact the investment incentives of carriers positioned to capitalize on their access to the facilities

(... footnote continued)

licensed service area. The proposal the Commission is considering would eliminate this "in-market exception" and require the provision of roaming to a requesting carrier anywhere it did not have facilities, even in areas where the requesting carrier was licensed to provide service but had not built facilities to do so. The conclusions in this section, while presented with respect to the proposal to mandate automatic broadband data roaming agreements, apply with equal force to the proposed elimination of the so-called "in-market exception."

of rivals. This potential consequence becomes more likely, and more likely significant, the lower are the prices at which service providers are required to grant access to their networks. Indeed, the public comments of at least one carrier, Leap Wireless, suggests a business strategy to forego facilities investment in rural areas and instead to rely upon roaming arrangements.¹⁰⁵ Compulsory data roaming will solidify a strategy to piggyback on the network investments of rivals, rather than promote efficient incentives to invest in the deployment of data networks in rural and other underserved areas.

88. Finally, data networks at present appear to be under stress, and this situation would only worsen, to the potential detriment of service quality, with roaming obligations that add to existing traffic burdens.

VI. Concluding Remarks

89. Historically, the Commission has examined competition in wireless services through application of a sophisticated and rigorous analytical framework that affords due weight to a number of pertinent economic indicia. The resulting assessments of competition have yielded the correct determination that the provision of wireless services is effectively competitive and should not be subject to extensive regulatory oversight. Looking ahead, there is no reason for the Commission to alter its approach. In particular, the Commission should resist any temptation to lean more heavily on basic concentration metrics that disguise the significant degree of rivalry observed in the marketplace.

90. Application of the current framework to today's wireless industry leads inexorably to the conclusion that the marketplace is effectively competitive, both in the provision of wireless services and in other sectors within the "mobile value chain." Consequently,

¹⁰⁵ Corporate Profile of Leap Wireless: "Leap keeps costs low by engineering high-quality, efficient networks covering only the urban and suburban areas of our markets where most of our potential customers live, work and play. Leap does not incur the cost of maintaining a network or purchasing licenses simply to provide continuous geographic coverage across broad areas." (Available at <http://phx.corporate-ir.net/phoenix.zhtml?c=95536&p=irol-homeProfile&t=&id=&>.)

proposals for regulatory intervention, if implemented, would be expected to distort the economic incentives of market participants and thereby undermine competition and the delivery of consumer benefits.

I declare, under penalty of perjury, that the foregoing is true and correct.


Robert D. Willig

September 30, 2009